

PUBLIC DRAFT



2025 URBAN WATER MANAGEMENT PLAN

MARIN MUNICIPAL WATER DISTRICT
JUNE 2026



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Marin Municipal Water District

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ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACS	American Community Survey
AF	Acre-Feet
AFY	Acre-Feet per Year
AMI	Advanced metering infrastructure
AWE	Alliance for Water Efficiency
AWWA	American Water Works Association
BCM	Basin Characterization Model
BTTP	Bon Tempe Treatment Plant
CAP	Climate Adaptation Plan
CCR	California Code of Regulations
cfs	Cubic Feet per Second
CGC	California Government Code
CII	Commercial, Industrial, and Institutional
CMIP	Coupled Model Intercomparison Project
CWC	California Water Code
DDW	Division of Drinking Water
DIM	Dedicated Irrigation Meter
DMM	demand management measure
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
EO	Executive Order
ETWU	Estimated total water use
GCM	Global circulation models
GPCD	Gallons per capita per day
GPSCD	Gallons per Service Connection per Day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
kWh	Kilowatt-hour
kWh/AF	Kilowatt-hours per Acre-Foot
kWh/vol	Kilowatt-hours per Volume

LGVSD	Las Gallinas Valley Sanitary District
MAWA	Maximum applied water allowance
MCCWL	Making Conservation a California Way of Life
MCLs	Maximum Contaminant Levels
MG	Million gallons
mgd	Million Gallons per Day
MMWD	Marin Municipal Water District
NBWRA	North Bay Water Reuse Authority
PVP	Potter Valley Project
PWS	Public Water System
RHNA	Regional Housing Needs Allocation
SASM	Sewerage Agency of Southern Marin
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SGTP	San Geronimo Treatment Plant
SMCSD	Sausalito-Marín City Sanitary District
SMSWP	Sonoma Marin Saving Water Partnership
SWRCB	State Water Resources Control Board
SWSA	Strategic Water Supply Assessment
TAC	Technical Advisory Committee
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
UWUO	Urban Water Use Objective
WAC	Water Advisory Committee
WBIC	weather based irrigation controller
WSCP	Water Shortage Contingency Plan
WUE	Water use efficiency
WWTP	Wastewater Treatment Plant
WY	Water years

EXECUTIVE SUMMARY

☒ CWC §10630.5

Each plan shall include a simple lay description of how much water the agency has on a reliable basis, how much it needs for the foreseeable future, what the agency's strategy is for meeting its water needs, the challenges facing the agency, and any other information necessary to provide a general understanding of the agency's plan.

This Urban Water Management Plan (UWMP) is prepared for Marin Municipal Water District (District), which serves drinking water to a population of 188,116 in Marin County, California. This UWMP includes descriptions of historical and projected water demands and water supplies and reliability over the UWMP planning horizon. This document also describes the actions the District is taking to promote water conservation, both by the District and by its customers (referred to as “demand management measures”), and includes a plan to address potential water supply shortages such as drought or other impacts to supply availability (the “Water Shortage Contingency Plan”). This UWMP is updated every five years in accordance with state requirements under the Urban Water Management Planning Act (UWMP Act) and amendments (Division 6 Part 2.6 of CWC §10610 – 10656). Past plans developed for the District are available on the California Department of Water Resources (DWR) Water Use Efficiency Data Portal website: <https://wuedata.water.ca.gov/>. This Plan includes eleven chapters, which are summarized below.

Chapter 1 – Introduction

This chapter presents the background and purpose of the UWMP, identifies the Plan organization, and provides this lay description overview of the document.

Chapter 2 – UWMP Preparation

This chapter discusses key structural aspects related to the preparation of the UWMP, and describes the coordination and outreach conducted as part of the preparation of the Plan, including coordination with local agencies (i.e., members of the Sonoma-Marín Saving Water Partnership [SMSWP] and Marin County) and the public.

Chapter 3 – Service Area Description

This chapter provides a description of the District's water system and service area, including information related to the climate, population, and demographics. The District serves a population of 188,116 and has a moderate climate characterized by mild dry summers and cool wet winters. The majority of precipitation falls during late autumn, winter, and spring, averaging 51 inches of rainfall annually.

Chapter 4 – Water Use Characterization

This chapter provides a description and quantifies the District's current and projected demands through the year 2050. The District provides drinking water (also referred to as “potable water”), raw water, and recycled water to its customers. Water demands refer not only to the water used by customers, but also includes the water used as part of the system maintenance and operation, as well as unavoidable losses inherent in the operation of a water distribution system. The District also provides raw water environmental releases from Kent and Soulajule Lakes to meet environmental flow requirements that benefit silver salmon and steelhead populations in Walker Creek and Lagunitas Creek. Total water demand within the District was 31,257 acre-feet per year (AFY) in 2025. Taking into account historical water use, expected population increase and other growth, climatic variability, and other assumptions, total water

demand within the District is projected to increase to 37,822 AFY by 2050. These water demands include potable, raw (including environmental releases) and recycled water demand.

Chapter 5 - SB X7-7 Reporting

In this chapter, the District demonstrates compliance with its per capita water use target for the year 2020. The Water Conservation Act of 2009 (Senate Bill X7-7) was enacted in November 2009 and requires the state of California to achieve a 20 percent reduction in urban per capita water use by 31 December 2020. In order to achieve this, each urban retail water supplier was required to establish water use targets for 2015 and 2020 using methodologies established by DWR. The 2025 UWMPs are required to continue report progress in meeting the 2020 target. The District is a member of a “Regional Alliance” for purposes of SB X7-7 compliance. The Regional Alliance’s 2020 water use is 113 GPCD, and the Regional Alliance remains in compliance with its 2020 target of 129 GPCD.

Chapter 6 - Normal Year Water Supply Characterization

This chapter presents an analysis of the District’s water supplies, as well as an estimate of water-related energy consumption. The intent of this chapter is to present a comprehensive overview of the District’s water supplies, estimate the volume of available supplies over the UWMP planning horizon, and assess the sufficiency of the District’s supplies to meet projected demands under “normal” hydrologic conditions.

Most of the District’s water supply comes from a network of seven local, rain-fed reservoirs operated by the District. This supply is supplemented with water purchased from the Sonoma County Water Agency (Sonoma Water). The District has contracted with Sonoma Water for this source of water since 1975. The current contract allows for the District to purchase up to 14,300 AF, with a minimum purchase requirement of 5,300 AF.

Within the District’s service area, wastewater is sent to six wastewater treatment plants. There are also five wastewater treatment plants within the District’s service area. The District’s recycled water is produced at the Las Gallinas Valley Sanitary District to tertiary levels before being distributed to customers. The District’s recycled water system consists of nearly 25 miles of pipeline, which delivered about 633 AFY to recycled water customers in 2025.

Energy intensity is defined as the net energy used for water treatment, conveyance, and distribution for all water entering the distribution system and does not include the energy used to convey or treat wastewater. The energy intensity for the District is estimated to be 647 kilowatt hours per acre-foot of water (kWh/AF).

Chapter 7 – Drought Risk Assessment

This chapter assesses the reliability of the District’s water supplies, with a specific focus on potential constraints such as water supply availability, water quality, and climate change. The intent of this chapter is to identify any potential constraints that could affect the reliability of the District’s supply (such as drought conditions) to support the District’s planning efforts. Water service reliability is assessed during normal, single dry-year, and multiple dry-year hydrologic conditions. Based on this analysis, the District expects the available supplies to be sufficient to meet projected demands in all hydrologic conditions, including a five-year drought period, and considering the impacts of climate change.

Further, potential water quality issues are not expected to affect the quality of water served to the District’s customers, as water quality is routinely monitored and the District is able to make all appropriate adjustments to its treatment and distribution system to ensure only high-quality drinking water is served.

Chapter 8 – Water Shortage Contingency Planning

This chapter describes the Water Shortage Contingency Plan (WSCP) for the District. The WSCP serves as a standalone document to be engaged in the case of a water shortage event, such as a drought or supply interruption, and defines specific policies and actions that will be implemented at various shortage level scenarios. For example, implementing customer water budgets and surcharges, or restricting landscape irrigation to specific days and/or times. Consistent with DWR requirements, the WSCP includes six levels to address shortage conditions ranging from up to 10% to greater than 50% shortage.

Chapter 9 – Demand Management Measures

This chapter includes descriptions of past and planned conservation programs that the District and the Sonoma-Marín Saving Water Partnership (SMSWP) operate within each demand management measure (DMM) category outlined in the UWMP Act, specifically: (1) water waste prevention ordinances, (2) metering, (3) conservation pricing, (4) public education and outreach, (5) distribution system water loss management, (6) water conservation program coordination and staffing support, and (7) “other” DMMs. The District has developed a suite of conservation programs and policies which address each DMM category.

Chapter 10 – Plan Adoption, Submittal, and Implementation

This chapter provides information on a public hearing, the adoption process for the UWMP Update, the adopted UWMP submittal process, UWMP implementation, and the process for amending the adopted UWMP. Prior to adopting the Plan, the District held a formal public hearing to present information on its UWMP on 16 June 2026.

Chapter 11 - References

This chapter contains key references and sources used throughout the Plan.

1 INTRODUCTION

This chapter introduces the importance and uses of this Urban Water Management Plan (UWMP or Plan), the relationship of this Plan to the California Water Code (CWC), the relationship of this Plan to other local and regional planning efforts, and how this Plan is organized and developed in general accordance with the California Department of Water Resources' (DWR) 2025 UWMP Guidebook.¹

1.1 Background and Purpose

This UWMP addresses the Marin Municipal Water District (District) water system. Most of the District's water supply comes from a network of seven local, rain-fed reservoirs. This supply is supplemented with water purchased from Sonoma County Water Agency (Sonoma Water). Recycled water is also used for non-potable uses such as landscape irrigation, cooling towers, car washes, and toilet flushing.

This UWMP is a source of information about the District's historical and projected water demands, water supplies, supply reliability and potential vulnerabilities, water shortage contingency planning, and demand management programs. The UWMP may also be used to inform a variety of planning activities. The District's last UWMP was adopted in January 2024, referred to herein as the "2024 UWMP." This UWMP is an update to the 2024 UWMP, carries forward information from that plan that remains current and relevant, and provides additional information as required by subsequent amendments to the UWMP Act (CWC §10610-10657). Although this UWMP is an update to the 2024 UWMP, it was developed to be a self-contained, stand-alone document and does not require readers to reference information contained in previous UWMP updates.

1.2 Urban Water Management Planning and CWC

The UWMP Act requires urban water suppliers to prepare a UWMP every five years and submit this plan to the DWR, the California State Library, and any city or county within which the supplier provides water supplies. All urban water suppliers, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet per year (AFY) are required to prepare a UWMP (CWC §10617).

The UWMP Act was enacted in 1983. Over the years it has been amended in response to water resource challenges and planning imperatives confronting California. A significant amendment was made in 2009 following the Governor's call for a statewide 20% reduction in urban water use by 2020, referred to as the Water Conservation Act of 2009, or "SB X7-7." This amendment required urban retail water suppliers to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20% by 2020. Beginning in 2016, urban retail water suppliers were required to comply with the water conservation requirements in SB X7-7 to be eligible for state water grants or loans. **Chapter 5** of this UWMP contains the data and calculations used to determine compliance with these requirements.

In 2016, Governor Brown signed Executive Order (EO) B-37-16 Making Conservation a California Way of Life (MCCWL). Subsequently, the Legislature passed Senate Bill (SB) 606 and Assembly Bill (AB) 1668, which added drought planning requirements, including:

- 1) Additional Water Shortage Contingency Plan (WSCP) requirements (CWC §10640),

¹ The 2025 UWMP Guidebook is available at:

https://wuedata.water.ca.gov/public/public_resources/4825681388/2025_Draft_UWMP_Guidebook_Release.zip

- 2) Drought risk assessments to assess water supply reliability in UWMPs for a drought period lasting five consecutive water years (WY) (CWC §10635(b)), and
- 3) Annual water supply and demand assessments to determine water supply reliability for the current year and one subsequent dry year (CWC §10632(a)).

These elements are included in **Chapter 7** and **Chapter 8** of this UWMP. Additionally, SB 606/AB 1668 set new requirements for urban water suppliers to further increase water use efficiency beyond SB X7-7. Beginning in 2024, agencies were required to report an annual Urban Water Use Objective (UWUO). **Section 4.8** of this UWMP documents the District’s progress in meeting the UWUOs.

The UWMP Act contains numerous other requirements that a UWMP must satisfy. **Appendix A** lists each of these requirements and where in the UWMP they are addressed.

1.3 Plan Organization

The organization of this Plan follows the same sequence as outlined in the 2025 UWMP Guidebook.

- Chapter 1 Introduction
- Chapter 2 UWMP Preparation
- Chapter 3 Service Area Description
- Chapter 4 Water Use Characterization
- Chapter 5 SB X7-7 Baseline, 2020 Target, and 2025 Reporting
- Chapter 6 Normal Year Water Supply Characterization
- Chapter 7 Water Supply Reliability Assessment
- Chapter 8 Water Shortage Contingency Planning
- Chapter 9 Demand Management Measures
- Chapter 10 Plan Adoption, Submittal, and Implementation
- Chapter 11 References

In addition to these sections, this Plan includes appendices providing supporting documentation and supplemental information. Pursuant to CWC §10644(a)(2), this Plan utilizes the standardized forms, tables, and displays developed by DWR for the reporting of water use and supply information required by the UWMP Act. This Plan also includes additional tables, figures, and maps to augment the set developed by DWR, as appropriate. The table headers indicate if the table is part of DWR’s standardized set of submittal tables. A lay description of the UWMP, including information related to water service reliability, potential issues, and strategies for managing reliability risks, is provided at the beginning of this UWMP.

1.4 UWMP Relationship to Other Efforts

This Plan provides information specific to water management and planning within the District’s service area. However, water management does not happen in isolation; there are other planning processes that integrate with the UWMP to accomplish urban planning. Some of these relevant planning documents include relevant city and county General Plans, Water Master Plans and others. This Plan is informed by and helps to inform these other planning efforts.

1.5 Special Considerations

This Plan includes information beyond the requirements of the UWMP Act to support other regulatory processes that rely on UWMP data, including the Delta Plan and permitting for ocean desalination projects.

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

Although not required by the UWMP Act, in the 2025 UWMP Guidebook, DWR recommends that all suppliers that are participating in, or may participate in, receiving water from a proposed project that is considered a “covered action” under The Delta Plan by the Delta Stewardship Council—such as a (1) multiyear water transfer, (2) conveyance facility, or (3) new diversion that involves transferring water through, exporting water from, or using water in the Delta—provide information in their UWMP to demonstrate consistency with the Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code of Regulations [CCR], Title 23, Section 5003).

The District’s source of water supply is from a network of local, rain-fed reservoirs, imported water purchased from Sonoma Water, and recycled water, and therefore the District does not receive water or plan to receive water from a “covered action” under the Delta Plan. As such, demonstration of consistency with the Delta Plan is not applicable.

1.5.2 Permitting for Ocean Desalination Projects

California’s *Water Supply Strategy: Adapting to a Hotter, Drier Future* updates state priorities to address water supply shortages due to long-term drought and the accelerating impacts of climate change, including identifying opportunities to access new water sources such as ocean desalination. To streamline permitting for ocean desalination projects, the *Seawater Desalination Siting and Streamlining Report to Expedite Permitting* recommends that UWMPs clearly demonstrate the need for future or proposed ocean desalination projects.

As discussed in Chapter 7, the District has sufficient water supplies available to meet projected demands through the 2050 planning horizon and does not anticipate the need for an ocean desalination project. Therefore, the District will not pursue ocean desalination to augment its supply portfolio.

2 UWMP PREPARATION

This section discusses the type of UWMP prepared by the District and includes information that applies throughout the UWMP. It also summarizes coordination and outreach during UWMP development.

Text from the Urban Water Management Planning Act (UWMP Act) has been included in grey text boxes with italicized font at beginning of relevant sections of this UWMP. The information presented in the respective UWMP sections and the associated text, figures, and tables are collectively intended to fulfill the requirements of that sub-section of the UWMP Act. To the extent practicable, supporting documentation has also been provided in **Appendix A** through **Appendix J**. Other sources for the information contained herein are provided in the references section of this document.

Per CWC §10644(a)(2), selected information for the 2025 UWMP updates must be presented in standardized tables for electronic submittal to DWR. The tables presented in this UWMP have been re-numbered, but the content has been preserved, and the original DWR table numbers are included in parentheses in the table titles.

2.1 Basis for Preparing the UWMP

☑ CWC §10617

“Urban water supplier” means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

☑ CWC §10608.12

(t) “Urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(w) “Urban wholesale water supplier” means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

☑ CWC §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.

☑ CWC §10621

(a) Each urban water supplier shall update its plan 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.

☑ California Health and Safety Code §116275

(h) “Public Water System” means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

In 1983, the California Legislature enacted the UWMP Act (CWC §10610 - §10657). The UWMP Act states that every urban water supplier that provides water to 3,000 or more connections or that provides over 3,000 acre-feet of water per year (AFY) should make every effort to ensure the appropriate level of water service reliability to meet the needs of its customers during normal, dry, and multiple dry years.

As a water system that provides drinking water for human consumption, the District is regulated as a Public Water System (PWS) by the State Water Resources Control Board (SWRCB), Division of Drinking Water. **Table 2-1** lists the District’s PWS identification number, number of municipal connections, and volume of water supplied. The SWRCB requires that water agencies report water usage and other relevant PWS information via the electronic Annual Reports to the Drinking Water Program (eARDWP). These data are used by the state to determine, among other things, whether an urban retail water supplier has reached the threshold (3,000 or more connections or 3,000 acre-feet [AF] of water supplied) for submitting a UWMP.

Table 2-1 Public Water Systems (DWR Table 2-1)

Has there been a change in the number of affiliated PWSs since the 2020 UWMP?			No
PWS Number	PWS Name	Number of Municipal Connections 2025 ²	Volume of Water Supplied 2025 (AF)
CA2110002	Marin Municipal Water District	60,898	31,257
Total		60,898	31,257

2.2 Individual or Regional UWMP

Urban water suppliers may elect to prepare individual or regional UWMPs. The District has elected to prepare an individual (**Table 2-2**). However, the 2025 UWMP was developed with close coordination with its wholesaler (Sonoma Water), and other parties that receive water from Sonoma Water (Water Contractors). Furthermore, a regional Alliance was formed in 2011 among the Water Contractors including the cities of Santa Rosa, Rohnert Park, Sonoma, Cotati, Petaluma, Town of Windsor, Marin Municipal Water District, Valley of the Moon Water District, and North Marin Water District to comply with Senate Bill (SB) X7-7, the Water Conservation Act of 2009. This regional Alliance, referred to in **Table 2-2** as the “North Marin-Sonoma Alliance” but more typically referred to as the Sonoma-Marín Saving Water Partnership (SMSWP), is used within the 2024 UWMP for reporting on regional 2015 and 2020 water use targets (see Chapter 5). All other elements of the CWC requirements are addressed in the District’s individual UWMP.

Table 2-2 Plan Identification (DWR Table 2-2)

Type of Plan		Name of Regional Alliance or RUWMP
☒	Individual UWMP	
☐	☒ Water Supplier is also a member of a SB X7-7 Regional Alliance	North Marin-Sonoma Alliance
☐	RUWMP	

² Number of municipal connections includes single-family, multi-family, commercial, institutional, and landscape connections.

2.3 Fiscal or Calendar Year and Units of Measure

CWC §10608.20

(a)(1) Urban retail water suppliers ... may determine the targets on a fiscal year or calendar year basis.

Per CWC §10617, the District is an urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually. It is therefore obligated under CWC §10621(f) to develop and submit a UWMP to DWR by July 1, 2026. The District is an urban retail water supplier, as defined by CWC §10608.12(t) and §10617, and as identified in **Table 2-3**. The District is not a wholesale water supplier.

Annual volumes of water reported in this UWMP are measured in AF and are reported on a calendar year basis (**Table 2-3**). Water use and planning data reported in this UWMP for calendar 2025 cover the full twelve months of the year, as required by the UWMP Guidelines.

Table 2-3 Supplier Identification (DWR Table 2-3)

Type of Supplier	
☐	Supplier is a wholesale supplier.
☒	Supplier is a retail supplier.
Fiscal or Calendar Year	
☒	UWMP tables are in calendar years.
☐	UWMP tables are in fiscal years.
Units of measure used in UWMP	
Unit	AF

2.4 Standard Submittal Tables and Alignment with UWMP Act Requirements

The UWMP has been prepared in general accordance with the format suggested in DWR's 2025 UWMP Guidebook. Text from the UWMP Act has been included in text boxes at the beginning of relevant sections of this UWMP. The information presented in the respective UWMP sections, and the associated text, figures, and charts are collectively intended to fulfill the requirements of that subsection of the UWMP Act. To the extent practicable, supporting documentation has also been provided in **Appendix A** through **Appendix J**. Other sources for the information contained herein are provided in the references section of the document.

Per CWC §10644(a)(2), selected information for the UWMP updates must be presented in standardized tables for electronic submittal to DWR. Text and tables in the main body of the UWMP document have been cross-referenced to the companion DWR tables. UWMP preparers are also requested to complete a checklist of specific UWMP requirements to assist the DWR review of the submitted UWMP. The completed checklist is included in **Appendix A**.

2.5 Coordination and Outreach

Coordination with other water suppliers, cities, counties, and community organizations in the region is an important part of preparing the updated UWMP and WSCP. This section identifies the agencies and organizations the District sought to coordinate during the preparation of this UWMP.

2.5.1 Wholesale and Retail Coordination

☒ CWC §10631

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision.

(f) An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

Urban retail water suppliers relying on one or more wholesalers for water supply are required to provide these wholesalers with information regarding projected water supply and demand. The District meets regularly with other water purveyors to discuss water supply and demand planning. In particular, the District meets at least monthly with its water wholesaler, Sonoma Water, and with other Water Contractors who purchase water from Sonoma Water. These monthly meetings occur through the District's participation in the Sonoma Water Technical Advisory Committee (TAC). The primary mission of the TAC is to provide input and guidance to Sonoma Water regarding technical issues that may have an impact on the Water Contractors (i.e., UWMP coordination, capital projects, operational changes, etc.). Additionally, the District participates in quarterly meetings of the Water Advisory Committee (WAC). The WAC's objectives are to advise Sonoma Water's Board of Directors on policy and fiscal matters affecting the Water Contractors. The District's participation in the TAC and WAC has been instrumental in coordinating water supply and demand analyses for the preparation of this UWMP.

The District's local water supply is supplemented with water purchased from Sonoma Water. The District's water supply agreement is separate from that of the other eight Water Contractors that purchase water from Sonoma Water. The District has provided demand projections through 2050 to Sonoma Water.

Table 2-4 Water Supplier Information Exchange (DWR Table 2-4)

Wholesale Water Supplier Name
Sonoma County Water Agency

2.5.2 Coordination with Other Agencies and the Community

☒ CWC §10620

(d)(3) Each urban water supplier shall 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.

☒ CWC §10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan and the water shortage contingency plan...

The District coordinated with other regional and neighboring entities during preparation of this UWMP to ensure that data and issues are presented accurately, including North Marin Water District, County of Marin, Sewerage Agency of Southern Marin, Sausalito-Marín City Sanitary District, Central Marin

Sanitation Agency, and Sanitary District No. 5. The agencies, cities, and counties that were notified by the District during the development of this UWMP are listed in **Chapter 10.10 (Table 10-1)**. A sample copy of the notices is provided in **Appendix C**.

2.5.3 Notice to Cities and Counties

☒ **CWC §10621**

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

The District provided a 60 Day Notice to the entities and the communities it serves more than 60 days prior to the public hearing it held on June 16, 2026, informing them that the UWMP was going to be reviewed and updated. As a courtesy, the District also provided a 60 Day Notice to other entities due to geographical proximity and to ensure regional alignment in water management. The 60 Day Notice recipients are listed in **Chapter 10 (Table 10-1)**, and copies of correspondence with the agencies are provided in **Appendix C**.

The District also sought public participation and notified the public of its intent to adopt its UWMP through a public hearing and notices to members of the community. Additional information on public participation, including information on notifications, is provided in Chapter 10 and in **Appendix D**.

3 SERVICE AREA DESCRIPTION

This section describes the District’s water system and service area, including climate, population, demographics, and land uses to help in understanding various elements of water supply and demand.

3.1 General Description

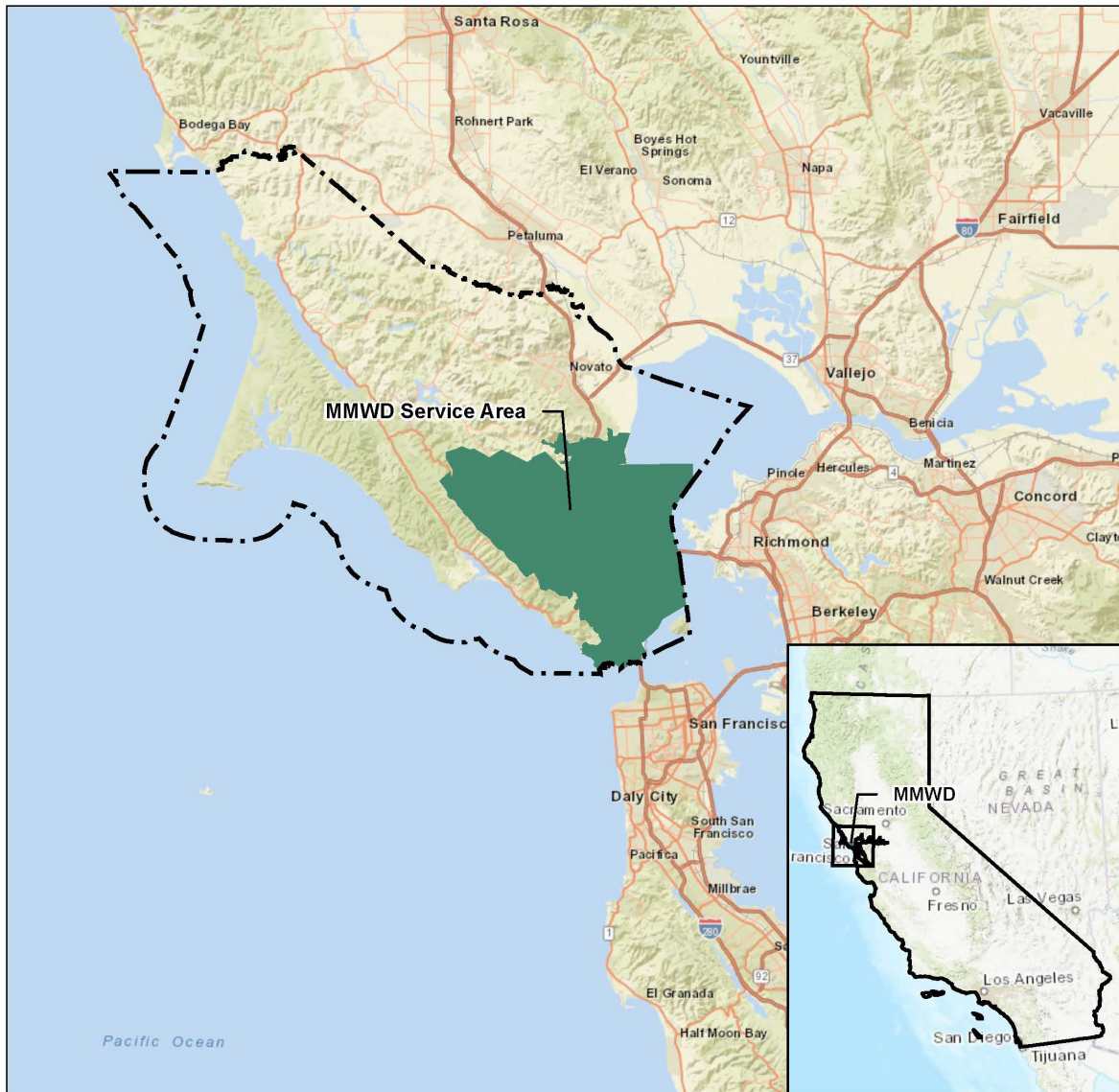
☒ **CWC §10631**

(a) Describe the service area of the supplier...

As shown in **Figure 3-1**, the District serves the populous eastern corridor of Marin County from the Golden Gate Bridge northward up to, but not including, the City of Novato. The District is bounded by the San Francisco Bay on the east and stretches through the San Geronimo Valley in the west. The incorporated cities and towns of San Rafael, Mill Valley, Fairfax, San Anselmo, Ross, Larkspur, Corte Madera, Tiburon, Belvedere and Sausalito, as well as unincorporated areas of Marin County, are within the District’s service area.

The District covers approximately 147 square miles and serves customers through 60,898 active service connections. Five of the seven District reservoirs (Alpine, Bon Tempe, Kent, Lagunitas, and Phoenix Lake) are located on the north slope of Mt. Tamalpais. The remaining two District reservoirs (Nicasio and Soulajule) are situated outside the District’s service area in western Marin County. The District’s service area is shown in **Figure 3-2**.

Figure 3-1 Regional Vicinity



Legend

- County Boundary
- Marin Municipal Water District

Abbreviations

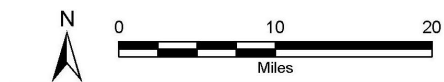
MMWD = Marin Municipal Water District

Notes

1. All locations are approximate.

Sources

1. Service area boundary provided by Marin Municipal Water District.
2. Basemap provided by ESRI.



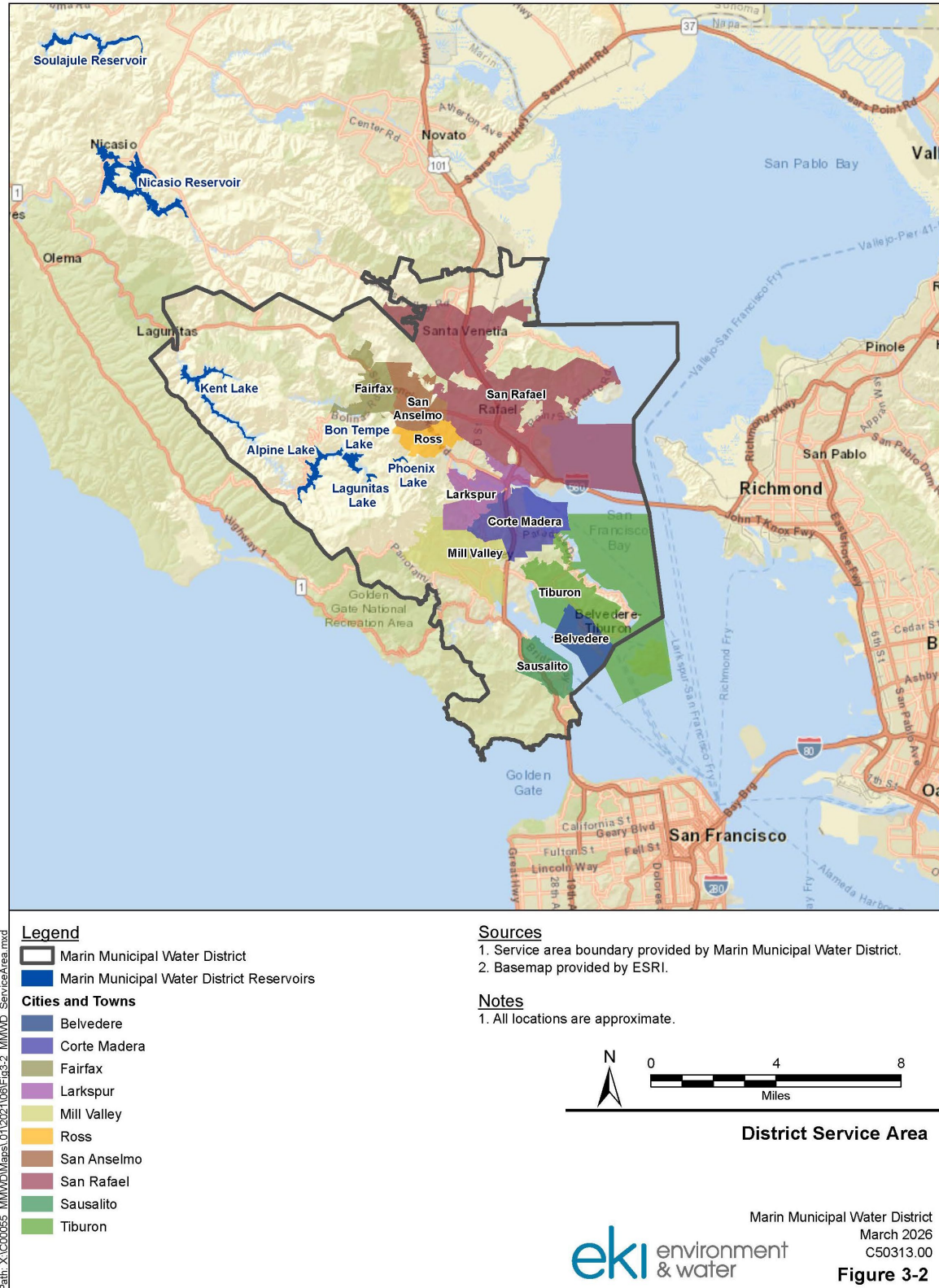
Regional Vicinity

eki environment
& water

Marin Municipal Water District
March 2026
C50313.00

Figure 3-1

Figure 3-2 District Service Area



3.2 Service Area Climate

☒ **CWC §10631**

(a) Describe the service area of the supplier, ... “climate...”

☒ **CWC §10635**

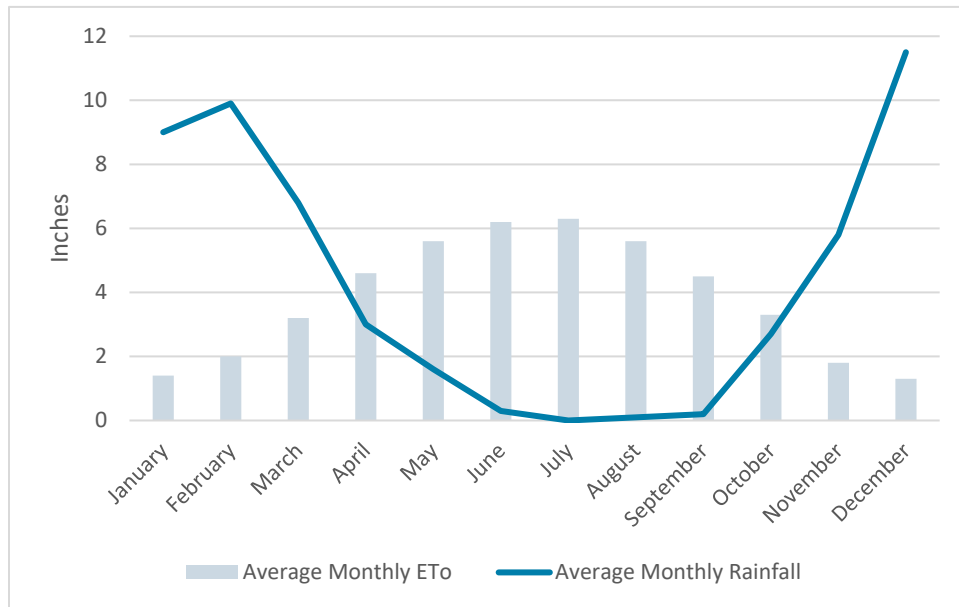
(b)(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

The District’s climate has a Mediterranean coastal climate. Summers are mild and dry, and winters are cool and wet. Based on data downloaded from the California Irrigation Management System (CIMIS) for 2002 through 2026, most rainfall occurs between November and March (see **Table 3-1** and **Figure 3-3**). On average, the District receives 50.9 inches of rainfall annually. Maximum daily air temperature averages 67.5 degrees Fahrenheit (°F) while minimum daily air temperature averages 45.4°F.

Table 3-1 Climate Characteristics

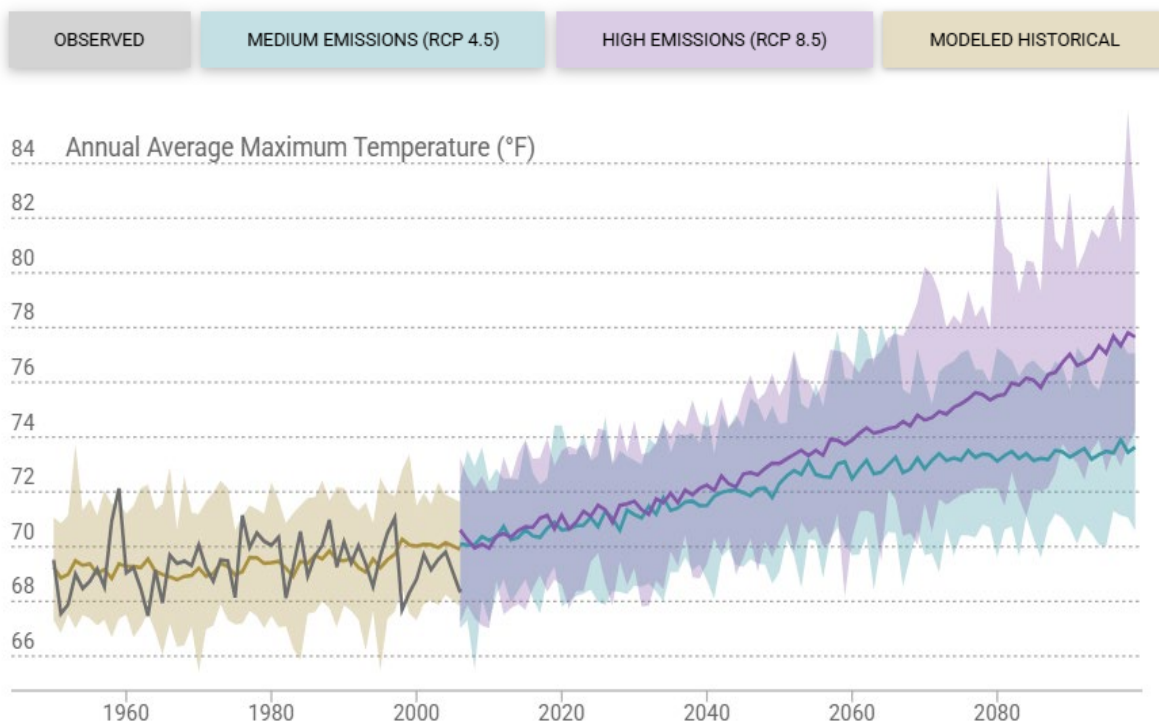
Month	Average Temperature		Average Rainfall (inches)	ETo (inches)
	Min (°F)	Max (°F)		
January	39.6	57.4	9.0	1.4
February	39.8	60.7	9.9	2.0
March	41.5	63.4	6.8	3.2
April	43.5	66.6	3.0	4.6
May	46.8	70.1	1.6	5.6
June	50.4	73.9	0.3	6.2
July	52.3	73.7	0.0	6.3
August	52.6	74.7	0.1	5.6
September	50.4	76.2	0.2	4.5
October	46.2	72.7	2.7	3.3
November	41.8	63.9	5.8	1.8
December	39.6	56.6	11.5	1.3
Annual	45.4	67.5	50.9	45.8
NOTES: (a) Average temperature and ETo data taken from the CIMIS Point San Pedro station (157) and has a period of record from 2002-2026. Average rainfall data is from MMWD’s Lake Lagunitas weather station averages from 1997-2026.				

Figure 3-3 Average Monthly Climatic Conditions



According to the Cal-Adapt tool, future projections for the District's service area using Localized Constructed Analogs (LOCA) downscaled Coupled Model Intercomparison Project (CMIP5) model indicate an average increase in temperature of 3.0°F for medium emissions (RCP 4.5) models and 3.7°F for high emissions (RCP 8.5) models by mid-century (2035-2064) (**Figure 3-4**). In addition to increasing average temperatures, climate change is expected to bring more extreme swings between wet and dry years, and impact environmental conditions and fire behavior.

Figure 3-4 Observed and Forecasted Temperature for District's Service Area



Chapter 4 discusses potential climate change impacts on water demands, and Chapter 6 discusses potential climate change impacts on supplies. Pursuant to the CWC requirements and the 2025 UWMP Guidebook, this UWMP incorporates climate change considerations into following relevant sections:

- Chapter 3 Service Area Description;
- Chapter 4 Water Use Characterization;
- Chapter 6 Normal Year Water Supply Characterization; and
- Chapter 7 Water Supply Reliability Assessment.

In addition, this UWMP incorporates the following documents by reference that include information on climate change hazards and mitigation actions within the District service area:

- 2023 Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan
- 2024 Sonoma County Water Agency Local Hazard Mitigation Plan
- 2022 Marin Municipal Water District Hazard Mitigation Plan

3.3 Service Area Population and Demographics

☒ CWC §10631

(a) Describe the service area of the supplier, including current and projected population ... other social, economic and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

Residential growth in Marin County boomed during the period following World War II up to the early years of the 1970s. Growth during the last two decades has averaged less than 1% per year, and the County Planning Department indicates that only 4% of lands within the County remain available for new development (MMWD, 2016). The population within the District remained level during the 1970s and 1980s. During that same period, the number of water service connections increased by 21%, from 46,000 to 58,000, with the majority being residential services, and the number of people per household declined from 3.1 to 2.5 (MMWD, 2016).

3.3.1 Future Population Growth

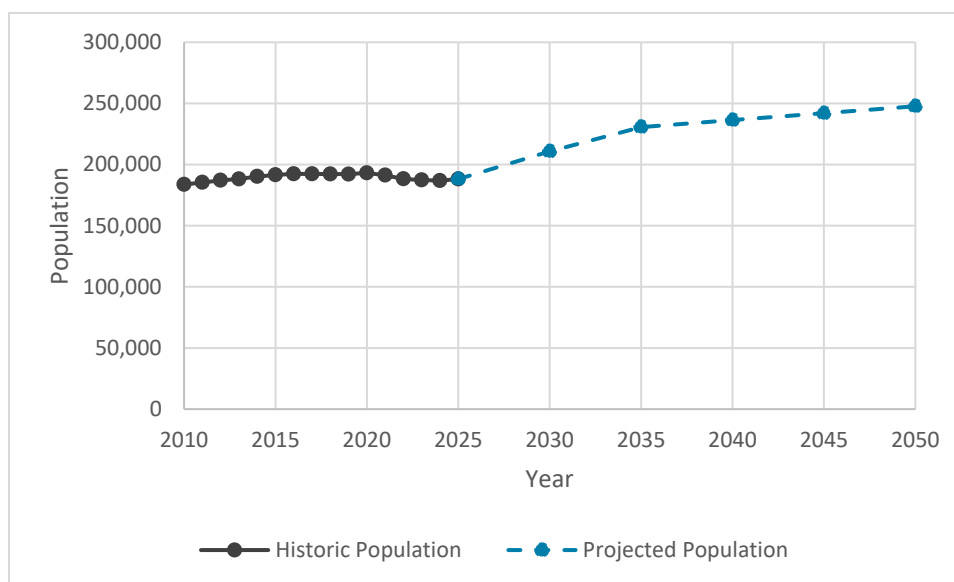
Table 3-2 and **Figure 3-5** show the current and projected population for the District's service area through the year 2050. Historic and 2025 population was provided by MMWD staff and are based on adjusted DOF estimates for MMWD's service area (EKI, 2025). Population projections were developed separately based on population projections by the Association of Bay Area Governments (ABAG) Plan Bay Area Projections 2050 (ABAG, 2021), as described further in the 2025 Water Demand Analysis and Water Conservation Measure Update (EKI, 2025; **Appendix B**).

Table 3-2 Population – Current and Projected (DWR Table 3-1)

Population Served	2025	2030	2035	2040	2045	2050
	188,116	210,778	230,680	236,345	242,009	247,674

NOTES: 2025 Water Demand Analysis and Water Conservation Update, Marin Municipal Water District, Table 5-2 Population and Employment Growth Projections (EKI, 2025)

Figure 3-5 Population – Historic and Projected



3.3.2 Future Employment Growth

Current and projected service area employment estimates from 2025 through 2050 were developed based on employment projections by the Association of Bay Area Governments (ABAG) Plan Bay Area Projections 2050 (ABAG, 2021), as described further in the *2025 Water Demand Analysis and Water Conservation Measure Update* (EKI, 2025; **Appendix B**). As shown in **Table 3-3**, service area employment is projected to decline from 78,680 in 2025 to 68,340 by 2035, followed by a modest recovery through 2050, reaching approximately 70,104 jobs. Overall, employment is expected to remain below 2025 levels, indicating a slight long-term decrease with gradual stabilization in later years.

Table 3-3 Employment – Current and Projected

Service Area Employment	2025	2030	2035	2040	2045	2050
	78,680	73,520	68,340	68,941	69,523	70,104

3.3.3 Other Social, Economic, and Demographic Factors

The District service area includes the majority of the population within Marin County, excluding the City of Novato and selected unincorporated areas. Demographics for Marin County are summarized in **Table 3-4**. The same data are also provided for the state of California as a whole and were obtained from the

U.S. Census American Community Survey (ACS) 2024 5-Year Estimates.³ Relative to the rest of California, Marin County’s population is slightly older and somewhat less racially diverse. Educational attainment and median household income in Marin County are higher than for the state as a whole, while persons below the poverty level is comparatively lower.

Table 3-4 Demographic and Housing Characteristics, 2020-2024

Demographics	Marin County	California
Age and Sex		
Persons under 5 years	4.4%	5.3%
Persons under 18 years	18.7%	21.3%
Persons 65 years and older	25.0%	16.5%
Female persons	50.9%	50.1%
Race and Hispanic Origin		
White alone	83.9%	69.8%
Black or African American alone	2.9%	6.4%
American Indian and Alaska Native alone	1.3%	1.8%
Asian alone	7.2%	17.0%
Native Hawaiian and Other Pacific Islander alone	0.3%	0.5%
Two or More Races	4.4%	4.4%
Hispanic or Latino	20.4%	40.8%
White alone, not Hispanic or Latino	66.3%	33.6%
Families & Living Arrangements		
Persons per household	2.44	2.84
Living in same house 1 year ago, percent of persons age 1 year+	89.7%	89.2%
Language other than English spoken at home, age 5 years+	23.9%	44.1%
Education		
High school graduate or higher, persons age 25 years+	92.8%	84.7%
Bachelor’s degree or higher, persons age 25 years+	61.1%	37.1%
Income & Poverty		
Median Household Income (2024 dollars)	\$149,901	\$96,334
Per capita income in past 12 months (2024 dollars)	\$93,920	\$47,977
Persons in poverty	9.9%	11.8%

³ U.S. Census Bureau, 2024. *2020-2024 ACS 5-year Estimates*. United States Census Bureau, dated 2024. Retrieved from: <https://data.census.gov/cedsci/>

3.4 Land Uses within Service Area

☒ **CWC §10631**

(a) ...The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities...

General Plans are required by State law to guide land use and development within cities (California Government Code [CGC] §65030.1). Land use within the District is primarily residential, but also includes agricultural, industrial, commercial, and recreational land uses. Current land use maps within the District, per the Land Use Element of the Marin Countywide Plan can be found in Section 3.12 of the Countywide Plan (Marin County, 2023). Future land uses are expected to remain generally consistent with current land uses.

3.5 Water Distribution System

The District's service area boundaries, location of water treatment plants, and potable water distribution system are illustrated in **Figure 3-6**. The District's potable and raw water distribution system includes approximately 908 miles of pipes, 97 pump stations, and 130 treated water storage tanks⁴ with a total storage capacity of 74.9⁵ million gallons (MG). The District treats water at its three treatment plants, the Bon Tempe Treatment Plant (BTTP) near Ross, the San Geronimo Treatment Plant (SGTP) in Woodacre, and the Ignacio treatment facility in Novato. Together, these facilities have a combined design capacity of 71 million gallons per day (mgd). Observed high flows have reached 45 mgd in July 2006; however, the average daily maximum flow is approximately 22.4 mgd over the last 10 years. In 2025, the total production of the three plants averaged 18.9 mgd.

The District's potable water system includes pipelines ranging in size from 3/4-inch pipes connecting customers' water meters to the District's mains, to the 42-inch transmission mains that carry source water to the treatment plants. In addition to the District's potable water system, the District also owns and operates a recycled water system, which is described in detail in Chapter 6.5.

⁴ This total does not include 3 clearwells and 7 hydropneumatic tanks.

⁵ Excludes 7 MG from clearwells and 12,000 gallons from hydropneumatic tanks.

Figure 3-6 District Water System



Sources

1. Marin Municipal Water District 2015 Urban Water Management Plan, prepared by RMC, dated June 2016.

Notes

1. All locations are approximate.
2. Not to scale.

Abbreviations

MMWD = Marin Municipal Water District
WTP = Water Treatment Plant

District Water System

Marin Municipal Water District
March 2026
C50313.00

eki environment & water

Figure 3-3

4 WATER USE CHARACTERIZATION

☒ CWC §10635

(a) Every urban water Supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

☒ CWC §10631

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following...

(d)(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(d)(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(d)(4)(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections. (ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

This chapter describes and quantifies the District's historical, current, and projected water uses through 2050. For the purposes of this UWMP, the terms "water use" and "water demand" are used interchangeably. All water served by the District is potable.

4.1 Non-Potable Versus Potable Water Use

Potable and non-potable water uses are accounted for separately herein. Potable uses are served by the District's potable water delivery system. Potable water deliveries comply with Title 22 Drinking Water Standards. Non-potable water uses include recycled and untreated raw water deliveries, such as tertiary treated recycled water or surface or groundwater supplies that do not meet potable drinking water standards. Uses of potable versus non-potable water are clearly distinguished in the tables included in this chapter.

4.2 Water Use Sectors

☒ CWC §10631

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

Demand within the District's water service area is measured using water meters installed at each customer account. Records of current and historical water use at each account are maintained by the District. Demand within the District's service area is tracked and reported for the following sectors:

- **Single Family Residential:** Attached or detached dwelling units that are individually metered.
- **Multi-Family Residential:** Two or more dwelling units served by a common water meter. Water use is predominately for indoor water uses.
- **Commercial:** Includes commercial customers. Irrigation water use at these sites is usually separately metered and listed in the irrigation sector.
- **Institutional/Governmental:** Includes institutional and governmental customers such as schools, government facilities, hospitals, churches or other public/non-profit customers.
- **Landscape:** Water meters used for landscape irrigation.
- **Wetlands or wildlife habitats:** Includes environmental releases from Kent Lake and Soulajule Lake.
- **Other:** Includes temporary meters and miscellaneous customers not listed elsewhere.

The District's total water demand includes water consumed by metered accounts in the service area (metered water use), authorized but unbilled uses, and water losses within the system. The latter accounts for physical losses within the distribution system caused by seepage, leaks, and spills, while the former accounts for accounting losses due to meter inaccuracies, data handling errors, and unauthorized consumption.

4.3 Past and Current Water Demand

☒ **CWC §10631**

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use... based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors...

Past water uses inform an understanding of water use trends which are crucial for developing water use projections. **Table 4-1** shows the 2025 actual water use by sector, while **Figure 4-1** shows historical and current water use from 2010 through 2025, and **Figure 4-2** shows total gallons per capita per day (GPCD) from 2010 through 2025. As shown in **Figure 4-1** and **Figure 4-2**, total and per capita demand have fluctuated since 2010, primarily influenced by drought conditions, mandatory state-wide restrictions in urban water use imposed by the State Water Resources Control Board (SWRCB), and local drought response. **Figure 4-2** shows that per capita demand has generally not rebounded after drought periods. This trend reflects the impact of water efficiency improvements, as well as demand hardening.

Table 4-1 2025 Actual Total Uses for Potable and Non-Potable Water (DWR Table 4-1)

Use Type	Additional Description	2025 Actual Water Use	
		Level of Treatment When Delivered	Volume (AF)
Single Family		Potable	11,441
Multi-Family		Potable	2,928
Commercial	Business/Industrial	Potable	2,246
Institutional/Governmental		Potable	1,335
Landscape		Potable	1,153
Other (optional)	Fireline/Hydrant	Potable	23
Distribution System Water Loss	Potable system (b)	Potable	1,979
Other (optional)	Other non-revenue water (c)	Potable	127
Other (optional)	Water sold to the Meadow Club	Non-Potable	151
Landscape	Recycled water system	Non-Potable	633
Wetlands or wildlife habitat	Environmental releases from Kent and Soulajule Lakes	Non-Potable	9,241
Subtotal Potable			21,232
Subtotal Non-Potable			10,025
Total			31,257
NOTES:			
(a) Volumes are in units of AF.			
(b) Potable system “losses” are estimated using the AWWA Free Water Audit Software. and includes both real and apparent losses and are based on the average of CY 2021-2024.			
(c) “Other non-revenue water” includes authorized but unbilled, unmetered consumption that does not fall under the category of “losses”, such as fire flow, system flushing, hydrant leaks, etc. Other non-revenue water is calculated as the difference between “water losses” and “non-revenue water” as reported in the AWWA Water Loss Worksheets and is the average of CY 2021-2024.			

Figure 4-1 Total Uses for Potable and Non-Potable Water - 2010 – 2025 Actual

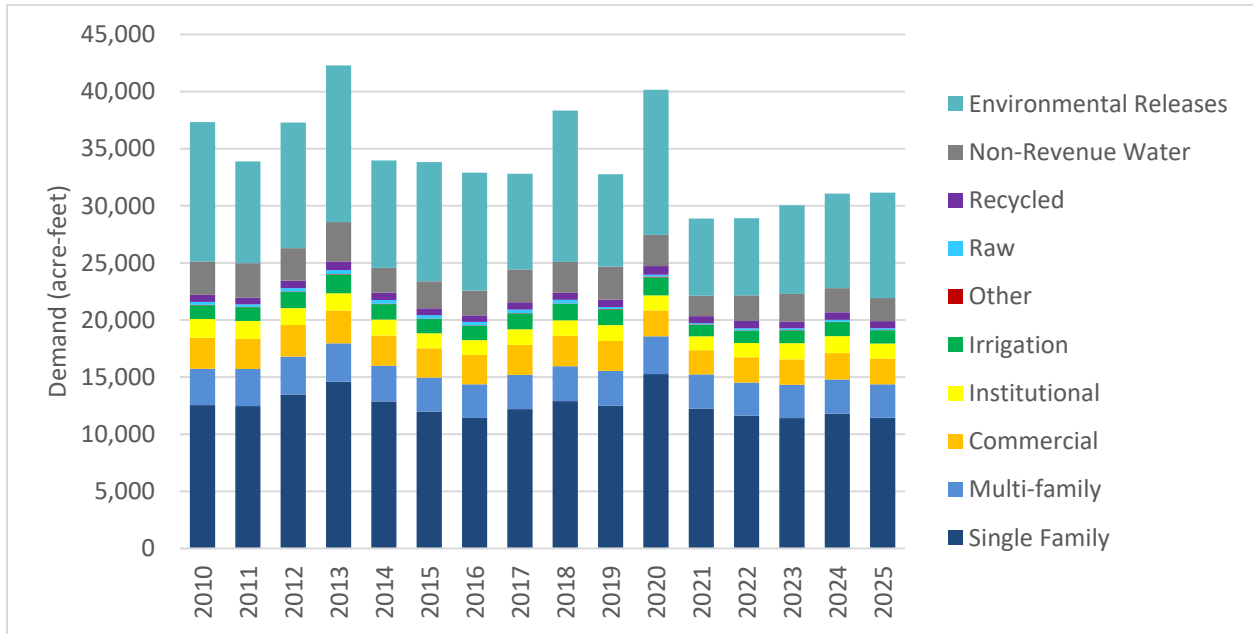
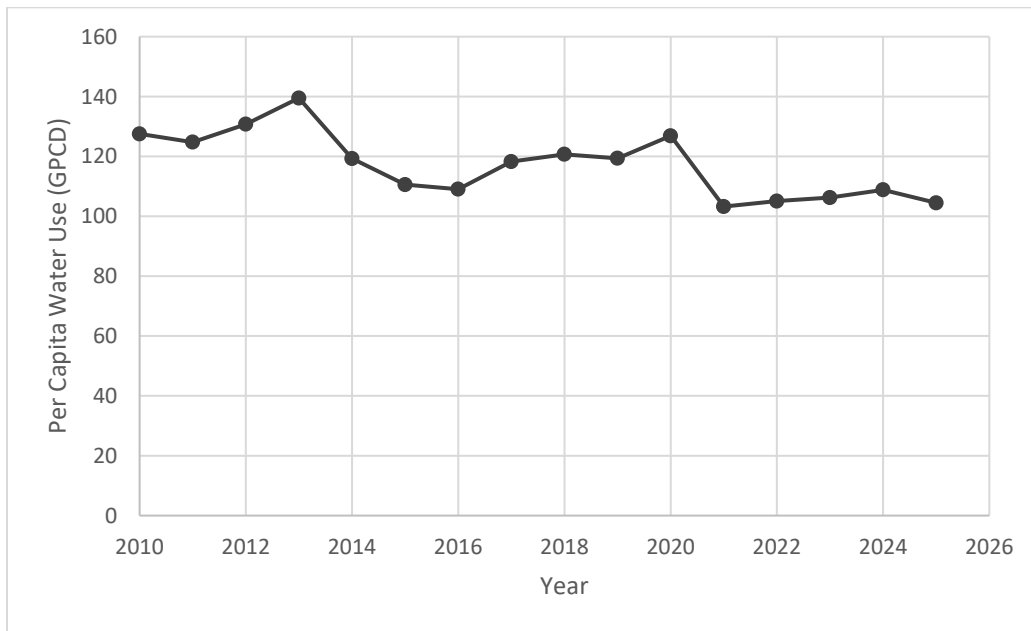


Figure 4-2 Per Capita Water Use



Note: Per capita water use is based on total demand, including potable, raw and recycled water use, but excluding environmental releases.

4.4 Distribution System Water Loss

☒ **CWC §10631(3)**

(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Water loss is the sum of apparent and real losses. Apparent loss is associated with metering inaccuracies, billing and administrative errors, authorized unmetered uses (e.g., system flushing and firefighting), and unauthorized uses. Real loss is associated with physical loss of water through line breaks, leaks and seeps, and overflows of storage tanks. Since 2016, urban retail water suppliers have been required under CWC §10608.34 and California Code of Regulations (CCR) §638.1 et seq to quantify distribution system water losses using the American Water Works Association (AWWA) Free Water Audit Software (referred to as “water loss audit reports”). Table 4-2 summarizes the water loss audit reports submitted to DWR for the PWS in the District since 2021. The water loss audit reports are available through DWR’s Water Use Efficiency Data.⁶

Table 4-2 Water Loss Audit Reporting Water Code Section 10631(d)(3)(A) (DWR Table 4-5)

PWS ID # (reported in DWR Table 2-1)	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
CA2110002	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
NOTES: 2020: https://wuedata.water.ca.gov/public/awwa_uploads/5626172721/Marin%20Municipal%20Water%20District%20%2D%20Validated%20Audit%20CY2020%2Exls 2021: https://wuedata.water.ca.gov/public/awwa_uploads/9493360221/Marin%20Municipal%20Water%20District%20%2D%20Validated%20Audit%20CY2021%2Exls 2022: https://wuedata.water.ca.gov/public/awwa_uploads/5535947501/Marin%20Municipal%20Water%20District%20%2D%20Validated%20Audit%20CY2022%20v6%2Exlsx 2023: https://wuedata.water.ca.gov/public/awwa_uploads/1543653190/Marin%20Municipal%20Water%20District%20%2D%20Validated%20CY2023%20v6%2Exlsx 2024: https://wuedata.water.ca.gov/public/awwa_uploads/5429792106/Marin%20Municipal%20Water%20District%20%2D%20Validated%20CY2024%20v6%2Exlsx		

⁶ DWR’s Water Use Efficiency Data Portal: https://wuedata.water.ca.gov/awwa_plans

In 2022, the SWRCB adopted water loss performance standards for urban retail water suppliers, aiming for a significant long-term reduction in real losses. Effective starting in 2023, the SWRCB established individual volumetric standards for each urban retail water supplier, calculated to reflect the life-cycle cost-effective level of water loss based on specific system characteristics. While annual reporting is ongoing, suppliers will be required to start meeting individual volumetric loss standards over a three-year period, with full compliance required by January 1, 2028. These standards constitute the water loss component of the MCCWL regulatory framework (SWRCB, 2022).

CWC §10631 (3)(c) requires that this UWMP demonstrate whether the District has met the distribution loss standards enacted by the SWRCB pursuant to CWC §10608.34. Table 4-3 demonstrates the District's progress towards meeting the 2028 water loss standard. Based on the most recent AWWA Water Loss Audit, both real water loss and apparent water loss are below the State Water Resources Control Board's 2028 standards of 26.2 GPCD and 11.6 GPCD, respectively; therefore, the District currently meets the 2028 water loss standards.

Table 4-3 Progress Towards 2028 Water Loss Standard (DWR Table 4-6)

PWS ID # (reported in DWR Table 2-1)	Did the SWRCB Calculate a Water Loss Standard for this PWS? (y/n) If no, Supplier will not complete this row.	Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit		Real Water Loss Per Unit per Day	State Water Board Standard		Most Recent AWWA Water Loss Audit		Apparent Water Loss Per Unit per Day
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit)		2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit)	
CA2110002	Yes	26.2	Gallons per Service Connection per Day (GPSCD)	63,863	1124.435	15.7	11.6	Gallons per Service Connection per Day (GPSCD)	63,863	714.246	10.0
NOTES: Latest AWWA Water Loss Audit is for CY 2024.											

4.5 Projected Water Demand

The District’s water demand projections were prepared as part of the 2025 Water Demand Analysis and Water Conservation Measures Update (Water Demand Report; EKI, 2025), which is provided in **Appendix B** and documents in detail the methods and assumptions used to project future water demand.

Projected total water demand is summarized in the following subsections.

4.5.1 Basis of Demand Projections

As described in more detail below and in the Water Demand Report (**Appendix B**), projected potable water demands for the District were estimated by:

1. Applying an estimated growth rate to accounts within each water use sector based on projected population and employment growth rates,
2. Evaluating and selecting water demand factors for each water use sector based on a review of recent average per-account water use
3. Estimating future passive savings using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (AWE model), and
4. Calculating estimated future water demand that incorporates the anticipated account.

This methodology is consistent with CWC §10631(d)(4)(A), which requires that “water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.” The assumptions used as the bases for demand projections were developed in close coordination with the District and reflect a land-use based approach consistent with community planning within the District.

Minimal growth is expected in the recycled and raw water sectors.

4.5.2 Water Savings from Codes, Standards, Ordinances, or Transportation and Land Use Plans

☒ CWC §10631(d)(4)

(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

“Passive conservation” refers to water savings resulting from actions and activities that do not depend on direct financial assistance (e.g., rebate) programs from the District. 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 California Green Building Standards Code (CALGreen) Building Code Standards. The water use projections discussed in **Section 4.5.3** include water savings associated

with these codes and standards. Specifically, as shown in **Table 4-4** and its associated chart, passive water savings for the District were calculated using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (referred to as the AWE model which was released in 2021). The AWE model is an industry standard tool that incorporates historical population, residential building stock, number of accounts, and projected population and account growth to estimate future passive savings. More information regarding the passive savings estimated using the AWE model can be found in **Appendix B**.

While projections account for passive savings, the District has taken a more conservative approach to demand projections by not accounting for savings associated with future active conservation measures⁷. However, savings associated with all historic conservation efforts are embedded into the demand projections. This approach is conservative, as it projects the higher projected demands used for future supply planning. Active conservation thus increases resiliency for District customers by further increasing efficient utilization of available supplies.

Table 4-4 Projected Potable Water Demand and Projected Passive Conservation

	Projected Total Water Demand				
	2030	2035	2040	2045	2050
Baseline Potable Water Demand	25,991	27,647	28,236	28,825	29,414
Passive Water Conservation	-1,117	-1,917	-2,238	-2,505	-2,740
Total Potable Water Demand	24,874	25,730	25,998	26,321	26,674
NOTES:					
(a) Volumes are in units of AF.					
(b) Totals may not sum due to rounding.					

4.5.3 Projected Total Water Demand

Projected customer water demands for years 2030 through 2050 are presented in **Table 4-5**. These demands are broken down by sector, including water loss. As affirmed in **Table 4-6**, both future water savings (Section 0) and lower income residential demands (Section 4.5.4) are included in the projections of future water use.

⁷ Active conservation includes direct actions to reduce water use through rebates, audits, restrictions, and education programs.

Table 4-5 Total Uses of Potable and Non-Potable Water - Projected (DWR Table 4-2)

Use Type	Additional Description	Projected Water Use (a)					
		Level of Treatment When Delivered	2030	2035	2040	2045	2050
Single Family		Potable	13,906	14,501	14,638	14,810	15,001
Multi-Family		Potable	3,238	3,462	3,500	3,549	3,606
Commercial	Business/ Industrial	Potable	2,171	1,949	1,936	1,927	1,920
Institutional/ Governmental		Potable	1,391	1,249	1,241	1,234	1,230
Other (optional)		Potable	29	27	27	27	28
Landscape		Potable	1,651	1,889	1,951	2,014	2,076
Distribution System Water Loss	Non-revenue water	Potable	2,488	2,651	2,705	2,760	2,814
Other (optional)	Raw water	Non-Potable	191	191	191	191	191
Landscape	Recycled water system	Non-Potable	656	656	656	656	656
Wetlands or wildlife habitat	Environmental releases from Kent and Soulajule Lakes (c)	Non-Potable	10,300	10,300	10,300	10,300	10,300
Subtotal Potable			24,874	25,728	25,998	26,321	26,675
Subtotal Non-Potable			11,147	11,147	11,147	11,147	11,147
Total			36,021	36,875	37,145	37,468	37,822
NOTES: (a) Volumes are in units of AF. (b) Potable, raw and recycled demand forecasts are from the 2025 Water Demand Analysis and Water Conservation Update, Marin Municipal Water District, Table 5-2 Population and Employment Growth Projections (EKI, 2025). (c) Environmental releases from Kent Lake and Soulajule Lake, and is estimated as the average releases from 2010-2025.							

Table 4-6 Inclusion in Water Use Projections (DWR Table 4-3)

Are Future Water Savings Included in Projections?	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	Refer to Section 4.5.2 and Table 5-4 of Appendix B .
Are Lower Income Residential Demands Included In Projections?	Yes
If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found.	Refer to Section 4.5.4

4.5.4 Water Use by Lower Income Households

☒ **CWC §10631.1**

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirements under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

As affirmed in **Table 4-6**, lower income residential demands are included in the projections of future water use. A "lower income household" is defined under California Health and Safety Code §50079.5(a) to be a household with less than 80% of median income, adjusted for family size. The Association of Bay Area Governments' (ABAG's) Final Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area, 2023-2031 (ABAG, 2025) was used to estimate the proportion of new lower income households anticipated within the District. New lower income households for all cities within the District's service area, as well as the unincorporated area within Marin County, were estimated to comprise approximately 46% of all new households needed in the District's service area, as shown in **Table 4-7**.

Table 4-7 Projected Water Use for Lower Income Households

Lower-Income Water Demand Sector	Projected Water Use (AFY)				
	2030	2035	2040	2045	2050
Single Family Residential	6,664	7,122	7,263	7,404	7,545
Multi-Family Residential	1,673	1,911	1,974	2,037	2,100
Total	8,337	9,033	9,237	9,441	9,645
NOTES: (a) Volumes are in units of AF					

4.5.5 Characteristic Five-Year Water Use

☒ **CWC §10635**

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following...

*(3) A comparison of the total water supply sources available to the water supplier with **the total projected water use for the drought period.** (Emphasis added).*

In accordance with CWC §10635(b)(3), UWMPs must provide a five-year Drought Risk Assessment (see **Section 7.5**). As a first step, DWR suggests that water suppliers estimate their unconstrained water demand for the next five years (2026-2030). Unconstrained water demand is water use in the absence of drought water use restrictions. These numbers can then be adjusted to estimate the five-years' cumulative drought effects. The Drought Risk Assessment presented in **Section 7.5** accounts for this increase in unconstrained water demand. **Table 4-8** shows unconstrained demands for 2026-2030 for normal weather and multiple-dry-year scenarios.

Table 4-8 Characteristic Five-Year Water Use (AF)

2026	2027	2028	2029	2030
32,210	33,162	34,115	35,068	36,021
NOTES: The table shows unconstrained demand (i.e., demand in the absence of drought water use restrictions).				

4.6 Water Use Sectors Not Included in Demand Projections

Historical and projected water demands for the water use sectors described in CWC §10631(d)(1)(G) through (I) and listed below were not included in the District's water demand calculations because they are not applicable to the District:

- Sales to other agencies;
- Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and
- Agricultural.

4.7 Coordinating Water Use Projections

☒ CWC § 10631(h)

An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.

The District purchases water from Sonoma Water. As part of the coordination effort for the UWMP, and in compliance with CWC §10631(h), the District supplied Sonoma Water with its water demand projections through 2050, as described in Chapter 2.

4.8 Urban Water Use Objective

☒ CWC § 10609.20

(a) Each urban retail water supplier shall calculate its urban water use objective no later than January 1, 2024, and by January 1 every year thereafter.

(b) The calculation shall be based on the urban retail water supplier's water use conditions for the previous calendar or fiscal year.

☒ CWC § 10609.22

(a) An urban retail water supplier shall calculate its actual urban water use no later than January 1, 2024, and by January 1 every year thereafter.

(b) The calculation shall be based on the urban retail water supplier's water use for the previous calendar or fiscal year.

☒ CWC § 10609.24

(a) An urban retail water supplier shall submit a report to the department no later than January 1, 2024, and by January 1 every year thereafter. The report shall include all of the following:

- (1) The urban water use objective calculated pursuant to Section 10609.20 along with relevant supporting data.*
- (2) The actual urban water use calculated pursuant to Section 10609.22 along with relevant supporting data.*
- (3) Documentation of the implementation of the performance measures for CII water use.*
- (4) A description of the progress made towards meeting the urban water use objective.*
- (5) The validated water loss audit report conducted pursuant to Section 10608.34.*

(b) The department shall post the reports and information on its internet website.

(c) The board may issue an information order or conservation order to, or impose civil liability on, an entity or individual for failure to submit a report required by this section.

In July 2024, California enacted the MCCWL regulation (implementing SB 606 and AB 1668) to support long-term water conservation and drought resilience. These regulations establish annual UWUOs for water suppliers and introduce Performance Measures for CII water users.

The UWUO is a water budget-based approach to water use efficiency unique to each urban water supplier and consists of the following components: (1) residential indoor water standard, (2) residential outdoor water budget, (3) CII landscape outdoor water use standard (for landscapes with dedicated irrigation meters, (4) water loss standard, (5) variance, and (6) bonus. Suppliers will need to assess whether they meet their UWUO collectively (i.e., they are not required to comply with the individual standards if they

meet the overall UWUO). Compliance with UWUOs is required beginning January 2027. Per the MCCWL regulation, over the next 25 years, the water efficiency standards for residential indoor and outdoor water use as well as CII outdoor water use will become increasingly stringent.

The state standards underlying the residential indoor, residential outdoor, and CII outdoor components of the UWUO will become increasingly stringent over time. As a result, compliance is expected to require continued reductions in water use beyond those achieved under the SB X7-7 framework.⁸ Urban retail water suppliers are required to report annually to the State Water Resources Control Board on water use relative to their UWUOs. The District submits UWUO compliance data through the Department of Water Resources' Water Use Efficiency Data portal.⁹ As part of the 2025 Water Demand Analysis and Water Conservation Measure Update prepared for the District, the District's UWUO compliance was forecasted using the following data sources and assumptions (EKI, 2025; **Appendix B**):

- Projected population, water use components subject to the objectives (e.g., residential water use and dedicated irrigation water use), and real water loss
- Decreasing Objective water use standards through 2040
- Residential landscape area based on values reported in the District's FY 2023-24 UWUO Annual Report and increasing proportional to population projections
- Existing (2025) CII landscape area on DIMs irrigated with potable water estimated from projected 2025 water use assuming a LEF of 0.80
- Future CII landscape area on DIMs increasing proportionally with the District's irrigation and recycled water accounts
- CII landscape area on DIMS irrigated with recycled water (i.e., Special Landscape Area) estimated from a water use of 55 AFY assuming a LEF of 1.0.

The results of the analysis, described further in Section 5.6 of **Appendix B**, indicate that the District is anticipated to comply with its UWUOs through 2035, but in 2040 is anticipated to be slightly above its objective as shown in **Table 4-9**.

Table 4-9 Current and Projected Urban Water Use Objectives Compliance

Year	Water Demand Subject to UWUO Compliance (b)	UWUO Projections (b)
2025 (c)	18,109	22,048
2030	21,090	26,397
2035	22,254	28,450
2040	22,526	27,420
NOTES: (a) Volumes are in units of AF. (b) Water demand subject to UWUO compliance includes single family, multi-family water, irrigation, and water loss sectors and is detailed in Appendix B. (c) 2025 uses actual data as reported on the Water Use Efficiency Data Portal.		

⁸ Under the MCCWL regulation, the SB X7-7 target serves as a backstop on the UWUO. If a supplier's UWUO exceeds its SB X7-7 target, its UWUO becomes its SB X7-7 target.

⁹ DWR's Water Use Efficiency Data Portal: https://wuedata.water.ca.gov/uwuo_plans

5 SB X7-7 REPORTING

☒ CWC §10608.24 (b)

Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

☒ CWC §10608.28

(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

The Water Conservation Act of 2009, also known as Senate Bill (SB) X7-7, required that urban retail water suppliers¹⁰ reduce their baseline per capita water use by 20% by 2020. Instead of, or in addition to, individual water use targets, urban water retail suppliers may plan, comply, and report on SB X7-7 requirements on a regional basis as part of a “Regional Alliance.” As described in Chapter 2, the District is one of eight Water Contractors to the Sonoma County Water Agency (Sonoma Water) for purchase of Russian River water supply. As such, the Water Contractors formed a regional in 2011 Alliance under the provisions of SB X7-7 because they are recipients of water from a common wholesale water supplier.

The membership of the Alliance is consistent with that of a previously established water conservation regional partnership of Sonoma Water Contractors, known as the Sonoma Marin Saving Water Partnership (SMSWP). This regional group, which collaborates on regional water conservation efforts, formed a Regional Alliance for the purposes of meeting regional water use targets. The members of the North-Marin Sonoma Alliance include: the District, City of Sonoma, City of Santa Rosa, Town of Windsor, City of Rohnert Park, City of Cotati, City of Petaluma, North Marin Water District, and Valley of the Moon Water District¹¹.

As shown in **Table 5-1**, the Alliance was in full compliance with the SB X7-7 2020 target. Details regarding calculation of the target and target progress can be found in the District’s 2020 UWMP.

¹⁰ CWC §10608.12 defines an urban retail water supplier as “a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.”

¹¹ The letter approving the District’s membership in the regional Alliance is available at the following link:
<http://www.savingwaterpartnership.org/wp-content/uploads/20x2020-regional-alliance-agreement.doc.pdf>.

Table 5-1 SB X7-7 2020 Target Progress (DWR Table 5-1)

Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target?	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?
No	Regional Alliance Target	129	113	Yes

6 NORMAL YEAR WATER SUPPLY CHARACTERIZATION

☑ **CWC §10631(b)** A plan shall be adopted in accordance with this chapter that shall do all of the following:

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

This section describes existing and future sources of water available to the District. It includes a description of each water source, source limitations, water quality, and future opportunities for additional supply development. The District's water supplies presently come from a combination of local surface water supplies, imported water from Sonoma County Water Agency, and recycled water. Each water supply is described further in the following sections.

6.1 Purchased Water

☑ **CWC §10631(h)** A plan shall be adopted in accordance with this chapter and shall do all of the following:

An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.1.1 Sonoma County Water Agency Surface Water Supply

The District receives its supplemental water supply from Sonoma Water's transmission system, which provides treated water purchased from Sonoma Water's Russian River Project. The Russian River flows have historically been augmented by Pacific Gas and Electric's (PG&E's) Potter Valley Project (PVP), which diverts a portion of the Eel River flows to the East Fork of the Russian River. Water is diverted and extracted from the stretch of the Russian River located just upstream of Wohler Bridge via six radial wells known as "Ranney collectors." The diverted river water percolates through sand and gravel and only needs the addition of chlorine to meet drinking water quality standards. Although the water extracted via Ranney collectors does percolate through the ground, due to the connection to the surface water source, this diversion is considered and is permitted as a surface water supply under existing surface water rights to the Russian River and Dry Creek water, described further in Section 6.1.2. The Sonoma Water supply also includes a relatively small amount of groundwater from groundwater supply wells located in the central Santa Rosa Plain Subbasin (Sonoma Water, 2026). Water imported from Sonoma Water is naturally filtered in the deep sand and gravel below the riverbed and requires no further clarification. This water enters the District's system at the Ignacio Water Quality and Pumping Station, where water quality is monitored continually and adjusted as needed.

The District's present contract with Sonoma Water is based on two documents: the 1975 Off-Peak Water Supply Agreement (Off-Peak Agreement) and its amendments, and the 1991 Agreement for the Sale of Water between Sonoma Water and the District. In 1996, these two contracts were combined into a single new agreement, the Supplemental Water Supply Agreement (Agreement).

In its original form, the Off-Peak Agreement allowed the District to take delivery, in the months of October through April, of up to 4,300 acre-feet (AF) of water surplus to the needs of all other Sonoma Water customers. The contract was amended twice before its inclusion in the Supplemental Water Supply

Agreement of 1996. The first amendment changed the basis of delivery of this water from “surplus” to “firm,” meaning that the District’s water deliveries would be as reliable as that provided to Sonoma Water’s other contractors. The second amendment allowed deliveries up to 360 AF per month from May to September.

The 1991 Agreement for Water Supply allowed the District to take deliveries of up to 10,000 AF of water per year beyond the amount included in the Off-Peak Agreement. These water deliveries were classified as “as available.” This meant that the contracted water supply was secondary to water provided to Sonoma Water’s other contractors and to water provided under the Off-Peak Agreement but would be provided unless certain predefined conditions existed.

The Supplemental Water Supply Agreement combined the two prior agreements such that the District can now take deliveries of up to 14,300 acre-feet per year (AFY) from Sonoma Water. All of these deliveries are also now classified as “firm” water and placed seasonal limitations on water deliveries.

The District renewed the agreement with Sonoma Water in August 2025. This Amended and Restated Water Supply Agreement pulls forward many of the same provisions from previous agreements, while also adding new or revised provisions. The Amended and Restated Agreement continues to include from previous agreements: the 14,300 AFY that the District may take delivery of, the 5,300 AFY annual minimum take-or-pay amount, and the transmission system capacity requirements and water shortage allocation approaches. Examples of revisions include: addition of a roll over provision for the minimum take-or-pay amount, elimination of the ramp-up/ramp-down provision simplified delivery caps, and participation in future planning discussions. A copy of the Amended and Restated Agreement is included in **Appendix E**.

In addition to contractual delivery limits, Russian River water deliveries to the District are subject to available pipeline capacity in facilities owned by Sonoma Water and North Marin Water District (NMWD). The Interconnection Agreement from 2014 describes the District’s rights to use the excess capacity in NMWD’s facilities. The Interconnection Agreement runs contiguous with the Sonoma Water Restructured Agreement for Water Supply, which will expire on 30 June 2040 and has renewal options.

6.1.2 Sonoma County Water Agency Surface Water Rights

As described in Sonoma Water’s 2025 UWMP, currently, four water rights permits (Permits 12947A, 12949, 12950, and 16596) issued by the SWRCB authorize Sonoma Water to store up to 122,500 AFY of water in Lake Mendocino and up to 245,000 AFY of water in Lake Sonoma, and to divert or redivert up to 180 cubic feet per second (cfs) of water from the Russian River with a limit of 75,000 AFY (Sonoma Water, 2026).

The permits also establish minimum instream flow requirements for fish and wildlife protection and recreation. These requirements vary based on hydrologic classifications (normal, dry, and critical) defined in Sonoma Water’s permits and SWRCB Decision 1610 (1986), as modified by Temporary Urgency Change Petitions (TUCPs) filed by Sonoma Water. Since 2010, summer-period instream flows have been adjusted through the TUCP process to comply with the 2008 Russian River Biological Opinion and its successor, the 2025 Biological Opinion (described in Chapter 7).

While Sonoma Water generally follows the minimum instream flow schedule established in Decision 1610 for most of the year, the hydrologic index used in that decision—based on cumulative inflow to Lake Pillsbury in the Eel River watershed—reflects historical operations of the Potter Valley Project, when substantial inter-basin transfers from the Eel River to the Russian River occurred. Because those transfers have declined and no longer reliably represent current Russian River water supply conditions, the Decision 1610 hydrologic index is not well aligned with present-day system operations. Therefore, Sonoma Water has been filing TUCPs biannually to request that Lake Mendocino storage thresholds—which are more

representative of water supply conditions in the Russian River System— be used as the hydrologic index for determining instream flow requirements. As discussed in the 2025 UWMP, Sonoma Water assumes it will continue to operate under these Lake Mendocino storage thresholds. Minimum instream flow requirements for the Russian River and Dry Creek are met through releases from Coyote Valley Dam and Warm Springs Dam (Sonoma Water, 2026).

6.1.3 Sonoma County Water Agency Groundwater Supply

Sonoma Water pumps a portion of its supply from the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin (DWR Basin 1-55.01). Groundwater is used primarily as a drought period supply, or when Russian River supplies are otherwise constrained. In 2025, no groundwater was used to meet retail demands. In the future, groundwater is planned to continue to be used as a drought supply or when Russian River supplies are otherwise constrained (Sonoma Water, 2026). Sonoma Water’s groundwater supply is discussed further in **Section 6.2**.

6.2 Groundwater

☒ CWC §10631

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following:

(4) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier’s service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

There are three groundwater basins identified in DWR’s Bulletin 118 that are at least partially within the District’s service area. These three basins include Ross Valley Groundwater Basin (DWR Basin 2-18), San Rafael Valley Groundwater Basin (DWR Basin 2-29), and part of the Novato Basin (DWR Basin 2-30). All three basins are categorized by the California Statewide Groundwater Elevation Monitoring (CASGEM) program as low or very low priority basins (DWR, 2019). Studies that have been conducted by the District over the last 40 years have determined that groundwater within the boundaries of the District’s service area is very limited as it is either found in fractures in the Franciscan Formation (bedrock) or in shallow

alluvial deposits in valleys. Therefore, the District does not pump groundwater and does not plan to use groundwater as a supply source in the future (see **Table 6-1**).

Although the District does not pump groundwater directly, a small portion of Sonoma Water water supply imported by the District is comprised of groundwater from the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin (DWR Basin 1-55.01). Groundwater is used primarily as a drought period supply, or when Russian River supplies are otherwise constrained (Sonoma Water, 2026). Given this, characteristics and groundwater management of the Santa Rosa Plain Subbasin are provided below.

6.2.1 Basin Description and Status

DWR determined that the Santa Rosa Valley Basin is not in a condition of critical overdraft (DWR, 2019). The Santa Rosa Plain Subbasin is currently categorized by the DWR program as a medium priority basin (DWR, 2019). Geologically, the Santa Rosa Plain Subbasin has one main water-bearing unit, the Merced Formation, and several units with lower water-bearing capacities, including the Glen Ellen Formation and the Alluvium. (DWR, 2006).

6.2.2 Groundwater Management

The Santa Rosa Plain Subbasin is subject to the requirements of SGMA, which include the formation of one or more GSAs and the development and implementation of one or more GSPs. The Santa Rosa Plain GSA was formed in June 2017 through a Joint Powers Agreement entered into by Sonoma Water, City of Cotati, City of Rohnert Park, City of Santa Rosa, City of Sebastopol, Town of Windsor, County of Sonoma, Gold Ridge Resource Conservation District, Sonoma Resource Conservation District, Branger Mutual Water Company, California American Water, Willowside Mutual Water Company, and Penngrove Water Company, and covers the entire Subbasin. The GSP for the Santa Rosa Plain Subbasin was submitted to DWR in January 2022 and approved by DWR in January 2023 (Sonoma Water, 2021b). The GSA is currently implementing and preparing Periodic Evaluations for the GSP which are required to be prepared at least every five years, with the next being due in January 2027.

6.2.3 Historical Pumping and Supply Sufficiency

As discussed in Section 6.2.1, the District does not extract groundwater as a source of supply and therefore **Table 6-1** does not include groundwater production. Sonoma Water's 2025 UWMP provides historical pumping and supply sufficiency information related to their use of groundwater and has factored this into the supply reliability information provided to the District and other Sonoma Water Contractors.

Table 6-1 Groundwater Volume Pumped (DWR Table 6-1)

☒	Checked box indicates the Supplier does not pump groundwater. Proceed to the next table.						
☐	Checked box indicates that all or part of the groundwater described below is desalinated. (OPTIONAL)						
Groundwater Type	Water Type (OPTIONAL)	Location or Basin Name	2021	2022	2023	2024	2025

6.3 Surface Water

The District's primary water supply is local surface water. Until 1976, all of the District's water supply was obtained solely from rainfall collected from 22,000 acres of the Mt. Tamalpais Watershed and in the hills of west Marin. The District maintains seven reservoirs which together are capable of holding 79,566 AF of water. Information regarding potential constraints on local surface water supply is provided in Section

7.1.A chronology of the District’s water rights, and development of its reservoir system is provided in **Table 6-2**. A map of the reservoir system is shown in **Figure 3-6**.

Table 6-2 District Surface Water Reservoir System

Reservoir Name	Year Constructed	Water Rights
Lake Lagunitas	1873	Pre-1914
Phoenix Lake	1905	Pre-1914
Bon Tempe Reservoir	1948	Appropriative Permit No. 05633
Alpine Lake	1918	Pre-1914
	1924	Appropriative Permit No. 05633
	1941	
Kent Lake	1953	Appropriative Permit No. 05633, 09390, 18546
	1982	
Nicasio Reservoir	1960	Appropriative Permit No. 12800
Soulajule Reservoir	1980	Appropriative License 12807 and Permit No. 16892

On average, the District has an average annual runoff of 83,000 AF (10-year average). The range of annual runoff received into the reservoirs ranges widely from a low of 4,000 AF in 1977 to over 212,000 AF in 2017. Surface water from the Mt. Tamalpais watershed is aerated seasonally in the reservoirs to maintain adequate dissolved oxygen concentration. From the reservoirs, the water is conveyed to either the Bon Tempe Treatment Plant (BTTP) near Ross or the San Geronimo Treatment Plant (SGTP) in Woodacre. Suspended matter is removed in clarifiers, microscopic particles are removed in deep-bed, multi-media filters, and bacteria and pathogens are inactivated by disinfectants. The water is then treated for control corrosion. The District has been fluoridating its water since 1973 as required by a voter approved ballot measure in 1972.

6.4 Stormwater

There are no plans to divert stormwater for beneficial uses in the District.

6.5 Wastewater and Recycled Water

☒ CWC §10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier’s service area.

This section provides information on the amount of generated wastewater and existing disposal of wastewater to determine the potential for recycled water use by the District. The amount of recycled water currently used, potentially available, and future potential uses for recycled water for the District are also described.

6.5.1 Recycled Water Coordination

The majority of recycled water used within the District’s service area is distributed by the District. The Sewerage Agency of Southern Marin (SASM) produces approximately 20 AFY of tertiary-treated recycled

water that is used to irrigate playing fields situated adjacent to the SASM treatment plant. SASM treats and distributes this water. Recycled water distributed by the District is produced at the Las Gallinas Valley Sanitary District (LGVSD) Recycled Water Treatment Facility (RWTF). The wastewater originates from within the LGVSD service area, which is also within the District's service area. The collected wastewater is treated to secondary levels at LGVSD's wastewater treatment plant and then receives further treatment at the RWTF before being distributed to customers.

In 2014 the LGVSD began supplying approximately 150 AFY of tertiary-treated recycled water produced at the newly constructed Las Gallinas Valley RWTF to NMWD. In 2019, LGVSD began construction on a major expansion and upgrade to the RWTF, to expand the facility's capacity from 1.4 mgd to over 5 mgd. The RWTF expansion is now complete and the RWTF has been producing water since April 2021.

The District has a close working relationship with the LGVSD. Prior to each irrigation season (April through October), the District provides a written estimate of the quantity of recycled water that will be needed for the season. The LGVSD attempts to provide the District with enough recycled water to meet its projected demand, and if the LGVSD is not able to meet the entire demand of the recycled water system, the system is supplemented by potable water.

6.5.2 Wastewater Collection, Treatment, and Disposal

☒ **CWC §10633 (a)**

A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

☒ **CWC §10633 (b)**

A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

Within the District's service area, there are 14 wastewater collection entities that send wastewater to six wastewater treatment plants that are owned and operated by five entities. Three of the five treatment entities utilize secondary effluent for landscape irrigation at their wastewater treatment plant. The Richardson Bay Sanitary District irrigates an adjacent park with secondary effluent. This water does not meet current recycled water regulations, but the existing practice has been "grandfathered." SASM has a small tertiary treatment facility and irrigates an adjacent park; however, saltwater intrusion limits this operation to low tide cycles only. **Table 6-3** summarizes the wastewater collection and treatment entities within the District's service area. Development within Marin County is limited due to space constraints; therefore, wastewater projections are estimated to remain steady over the planning horizon.

Table 6-4 provides a summary of the volumes of treated effluent discharged and recycled within the District's service area in 2025.

Table 6-3 Wastewater Collected Within Service Area in 2025 (DWR Table 6-2)

☐	Checked box indicates there is no wastewater collection system. Proceed to the next table.			
	Percentage of 2025 service area served by wastewater collection system (OPTIONAL)			
	Percentage of 2025 service area population served by wastewater collection system (OPTIONAL)			
Wastewater Collection			Recipient of Collected Wastewater	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? (OPTIONAL)	Volume of Wastewater Collected from UWMP Service Area 2025 (a)	Name of Wastewater Treatment Plant (WWTP) and Place ID Number	Is WWTP Located Within UWMP Area?
Almonte Sanitary District	Estimated	132	Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	Yes
Alto Sanitary District	Estimated	96	Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	Yes
Homestead Valley Sanitary District	Estimated	184	Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	Yes
City of Mill Valley	Estimated	1,218	Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	Yes
Richardson Bay Sanitary District	Estimated	812	Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	Yes
Tamalpais Community Services District	Estimated	40	Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	Yes
Tamalpais Community Services District	Estimated	399	Sausalito Marin City STP, Place ID 255802	Yes
National Park Service (Fort Baker)	Estimated	80	Sausalito Marin City STP, Place ID 255802	Yes

Table 6-3 (continued) Wastewater Collected Within Service Area in 2025 (DWR Table 6-2)

Wastewater Collection			Recipient of Collected Wastewater	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? (OPTIONAL)	Volume of Wastewater Collected from UWMP Service Area 2025 (a)	Name of Wastewater Treatment Plant (WWTP) and Place ID Number	Is WWTP Located Within UWMP Area?
Sausalito-Marín City Sanitary District (SMCSD)	Estimated	1,118	Sausalito Marin City STP, Place ID 255802	Yes
San Rafael Sanitation District	Metered	5,154	Central Marin San. Agcy. WWTP, Place ID 213889	Yes
Sanitary District No. 1 (Ross Valley)	Metered	6,156	Central Marin San. Agcy. WWTP, Place ID 213889	Yes
Sanitary District No. 2 (Corte Madera)	Metered	1,464	Central Marin San. Agcy. WWTP, Place ID 213889	Yes
Sanitary District No. 5 (Tiburon)	Metered	684	Marin CSD 5 - Tiburon WWTP, Place ID 239497	Yes
Sanitary District No. 5 (Paradise Cove)	Metered	15	Marin CSD 5 Paradise Cove WWTP, Place ID 239498	Yes
Las Gallinas Valley Sanitary District (LGVSD)	Metered	2,812	Las Gallinas WWTP, Place ID 236598	Yes
Total Wastewater Received from UWMP Service Area in 2025:		20,365		
NOTES:				
(a) Volumes are in units of AF.				

Table 6-4 Wastewater Treatment and Outcomes Within UWMP Service Area in 2025 (DWR Table 6-3)

☐	Checked box indicates no wastewater is treated or disposed of within the UWMP service area. Proceed to the next table.													
Wastewater Treatment Plant Name and Place ID Number	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area?	2025 Volume of Wastewater Received from UWMP Service Area (as Reported in DWR Table 6-2)	Total 2025 Volume of Water Treated	2025 Outcomes of Treated Wastewater (b)										
				Water Recycled Within UWMP Service Area		Water Recycled Outside of UWMP Service Area		Effluent Discharge that is not a Permitted Recycled Water Use		Required Discharge for Instream Flow		Delivered to Another Entity for Additional Treatment		
				Treatment Level	Volume	Treatment Level	Volume	Treatment Level	Volume	Treatment Level	Volume	Treatment Level	Volume	Name of other entity
Central Marin San. Agcy. WWTP, Place ID 213889	No	12,774	12,774	-	-	Secondary, Disinfected - 23	4,384 (c)	Secondary, Disinfected - 23	8,390		0		0	
Las Gallinas WWTP, Place ID 236598	No	2,812	2,812	Tertiary	613	Tertiary	291 (c)	Secondary, Disinfected - 23	1,908		0		0	
Marin CSD 5 Paradise Cove WWTP, Place ID 239498	No	15	15	-	-	-	-	Secondary, Disinfected - 23	13		0		0	
Marin CSD 5 - Tiburon WWTP, Place ID 239497	No	684	684	-	-	-	-	Secondary, Disinfected - 23	618		0		0	
Sausalito Marin City STP, Place ID 255802	No	1,597	1,597	-	-	-	-	Secondary, Disinfected - 23	1,233		0		0	
Sewerage Agency of Southern Marin (SASM) WWTP, Place ID 255788	No	2,482	2,482	Tertiary	20	-	-	Secondary, Disinfected - 23	2,640 (d)		0		0	
		20,365	20,365		633		4,675		14,802		0		0	
NOTES: (a) Volumes are in units of AF. (b) The discharged volume may differ from the treated volume due to recirculation of flow within the plant and flow meter discrepancies. (c) Recycled water outside of UWMP service area from Central Marin San Agency WWTP and Las Gallinas WWTP is assumed to be the difference of influent minus effluent and recycled water use within the UWMP service area. (d) Information is not available on why SASM WWTP effluent exceeds influent.														

6.5.3 Recycled Water System and Recycled Water Beneficial Uses

☒ **CWC §10633 (c-g)**

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) 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 pursuant to this subdivision.

(f) A description of actions, including financial incentives, 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.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The District started water recycling during the drought of 1976-77 when a pilot plant was commissioned for drought relief. The pilot plant demonstrated that recycled water was available when other sources were not. Increased concern about limited potable supplies led to a joint effort with the LGVSD to build a permanent facility. In 1981, a 1.0 mgd direct filtration plant was completed and served 60 AFY to nearby McInnis Park and to highway landscaping. Plans for further expansion were set back when the state water reclamation regulations (Title 22) were made more stringent. The water quality that the plant was capable of producing was no longer adequate for irrigating parks, playgrounds, and greenbelts.

In 1989, the District upgraded the recycled water facility from direct filtration to full conventional treatment and increased capacity to 2.0 mgd. With improved water quality, the District was able to expand its recycled water market. From 1990 through 1994, the distribution system was enlarged using District funds plus a \$5 million low-interest loan from the State Revolving Fund. Today, the District's recycled water system serves about 630 AF of recycled water per year through 330 service connections.

Over the past 25 years, the District has consistently strived to expand the use of recycled water, number of sites served, and the total amount of recycled water put to use. The system is located in the northern part of the District's service area from the Marin County Civic Center through Marinwood. All customers on the system are served recycled water from the District's Las Gallinas Valley RWTF, operated in conjunction with the LGVSD.

The RWTF produces highly treated recycled water year-round. Marin County experiences a relatively wet rainy season which decreases the demand season for landscape irrigation to about six months of the year (May through October).

Although irrigation remains the primary use (95%) for recycled water in the District's service area, there are virtually no large-scale irrigation accounts and no major industrial water users in the area. Therefore, the District has turned to alternative uses of recycled water to optimize the efficiency of the system, including the following.

- **Flushing Toilets with Recycled Water** – As a result of efforts launched in 1991, there are now 38 buildings in the District's service area that use recycled water to flush toilets and urinals. This includes the 330-bed Marin County Jail, which was the first indoor use of recycled water in a penal

institution. All new buildings in the recycled water service area are now required to be constructed with dual plumbing to use recycled water indoors as well as for landscape irrigation. In September 2011, the District began providing recycled water to 33 San Pedro, the first residential condominium complex in California to be dual plumbed to use recycled water for toilet flushing.

- **Car Washes with Recycled Water** – In 1995, the District was the first in California to use recycled water in a car wash. Building on that success, two new car washes were constructed to use recycled water. All new car washes in the recycled water service area are now required to use recycled water.
- **Heating, ventilation, and air conditioning (HVAC) Cooling Towers with Recycled Water** – The District successfully pioneered the first use of recycled water in a HVAC cooling tower in 1995. Since then, two more buildings have had the HVAC system converted to recycled water.

Table 6-5 below provides the anticipated future recycled water within the District. As discussed in further detail in **Appendix B**, total recycled water use is projected to be 657 AFY by 2050, to be fully met with recycled water from the Las Gallinas Valley RWTF. **Table 6-6** provides a summary comparison of 2025 recycled water use that was projected in the 2020 UWMP versus actual 2025 recycled water use. Actual 2025 recycled water use is 116 AF lower than projected in the 2020 UWMP. This is likely due to reduced irrigation demand due to wet periods, reduced irrigation during drought, less new customer connections than projected.

Table 6-5 Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4)

☐	Checked box indicates recycled water is not used and is not planned for use within the service area of the supplier.									
Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL):					Las Gallinas Valley Sanitary District Recycled Water Facility					
Name of Supplier Operating the Recycled Water Distribution System (OPTIONAL):					Marin Municipal Water District					
Supplemental Water Added in 2025 (volume). Include units (OPTIONAL):										
Source of 2025 Supplemental Water (OPTIONAL):										
Use Type	Water Type (after treatment if treated)	Additional Information (as needed)	2025	2030	2035	2040	2045	2050 (opt)	Potential Recycled Water Use	
									Volume	Narrative page number (OPTIONAL)
Landscape irrigation (exc golf courses)	Non-Potable		333	345	345	345	345	345	345	6-14
Golf course irrigation	Non-Potable		73	76	76	76	76	76	76	6-14
Commercial use	Non-Potable		176	183	183	183	183	183	183	6-14
Industrial use	Non-Potable		14	15	15	15	15	15	15	6-14
Other (Description Required)	Non-Potable	Toilet/urinal flushing in commercial and residential settings	37	38	38	38	38	38	38	6-14
Subtotal Potable			0	0	0	0	0	0	0	
Subtotal Non-Potable			633	657	657	657	657	657	657	
Total			633	657	657	657	657	657	657	
NOTES: Volumes are in units of AF.										

Table 6-6 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual (DWR Table 6-5)

☐	Checked box indicates recycled water was not used in 2025 nor previously projected for use in 2020.	
Use Type	2020 Projection for 2025 (a)	2025 Actual Use (a)
Landscape irrigation (excl. golf courses)	443	332
Golf course irrigation	88	73
Commercial use	162	176
Industrial reuse	33	14
Other (Description Required)	23	37
Total	749	633
NOTES: (a) Volumes are in units of AF.		

6.5.4 Actions to Encourage and Optimize Future Recycled Water Use

The District uses a variety of incentives to encourage recycled water use. One of the more positive marketing aspects of recycled water is reliability. The droughts of 1976-77 and 1987-92 necessitated severe rationing with resultant damage to customers' landscape plantings. With recycled water used for landscaping during droughts, customers' investments in landscaping are protected.

District Board Policy No. 2, included in **Appendix F**, contains the District policy on recycled water. The policy states that, "at the District's discretion, certain areas in and around a water recycling facility may be designated as "recycled water use areas" which may require, as a condition of water service, the use of recycled water for irrigation, indoor water use, and other types of non-potable use.

The District has thoroughly explored ways to expand water recycling. However, with few large users of non-potable water (such as golf courses and heavy industry) within the District's service area, the District's remaining water recycling options are more expensive and less feasible than continuing to use potable infrastructure. As more customers improve irrigation efficiency, reduce turf areas, switch to native and drought-tolerant landscapes, and convert parks and athletic fields to artificial turf, there are fewer opportunities and lower demand for recycled water. For example, the total water entitlement of all recycled water customers connected to the recycled water system is 956 AF.

Another obstacle to increased water recycling in the District's service area is severe saltwater intrusion into the sewer collection systems of most of the local sanitation agencies, including that of the community's largest wastewater agency, Central Marin Sewer Agency. Rehabilitation of the sewer collection system was explored, but intrusion is so widespread that the cost to repair the sewers is much more than the cost of the water recycling project. Reducing salt in wastewater using membrane processes has also been explored, but the high cost and increased concentration of contaminants remaining in the wastewater discharge render that alternative infeasible from both a cost and regulatory perspective.

Satellite recycling plants, which can intercept sewage above the zones of saltwater intrusion and process the sewage to tertiary recycled water, appeared to be a promising avenue for enlarging the District's recycled water program. In 2001, the District conducted a study, partially funded through a grant from the DWR, to investigate the viability and cost of incorporating satellite water recycling plants into the

District's distribution system. However, while the study concluded that this approach was technically feasible, it would cost over \$3,000 per AF (in 2001 dollars), making it prohibitively expensive.

The District continues to investigate the potential for expansion of recycled water, which, along with conservation, is a high priority in the District's vision of sustainable water resource management. As part of its Strategic Water Supply Assessment (2023), the District evaluated recycled water and potable reuse opportunities for its various treatment plants. At this time, the District is exploring opportunities for grant funding to offset the cost of recycled water projects.

In 2022, the District completed a pre-design report that evaluated alternatives for a recycled water system expansion to the Peacock Gap area of San Rafael to capitalize on available capacity from the RWTF. The preferred project was estimated to provide an average annual demand offset of 285 AFY and cost \$26.4M, and is reflected in Table 6-7.

Table 6-7 provides a summary of estimated recycled water use that are expected to be realized by implementing these methods (i.e., required use of recycled water in recycled water use areas and recycled water system expansion) to encourage recycled water use.

Table 6-7 Methods to Encourage Future Recycled Water Use (DWR Table 6-6)

☐	Checked box indicates that Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (a)
Recycled water Board Policy	Requires the use of recycled water for irrigation, indoor water use, and other types of non-potable use for areas designated as "recycled water use areas".	Not applicable	Unknown
Recycled water system expansion	Extend the recycled water system to the Peacock Gap area of San Rafael	Unknown	285
Total			285
NOTES: (a) Volumes are in units of AF.			

6.6 Desalinated Water Opportunities

☒ **CWC §10631(g)** A plan shall be adopted in accordance with this chapter and shall do all of the following:

Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

During August of 2010, the District adopted Ordinance 420, which states that the District shall not approve construction, or financing for construction, of a desalination facility unless such construction is approved by a majority of District voters voting in an election held within the District's service area for that purpose. While the District has, in the past, explored desalination as a potential supply option, the District does not intend to pursue desalination to augment water supplies at this time.

6.7 Water Exchanges and Transfers

☒ **CWC §10631 (c)** *A plan shall be adopted in accordance with this chapter and shall do all of the following:
Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.*

The District's service area is entirely within Marin County. Marin County is a peninsula surrounded on three sides by water. The physical barriers imposed by these water bodies severely limit the water transfer opportunities available to the District.

However, during the drought of the 1970s, the District made use of water transfers to augment its supplies. Emergency pipeline connections were made to Sonoma Water, north of the District, and to the East Bay Municipal Utility District (EBMUD) water system to the east. Water was delivered to the District from the State Water Project through the EBMUD system and from the Russian River via the Sonoma Water and NMWD water systems.

The temporary connection with EBMUD was installed in the emergency pull-out lane of the Richmond-San Rafael Bridge. It was removed from the bridge in the early 1980s when traffic increased, making the pipeline a safety hazard. However, the connection to the NMWD and Sonoma Water systems was improved into a permanent connection, and contracts allowing delivery of water during non-emergency periods have been implemented as described in Section 6.1.

MMWD assessed, as one of many resiliency options, the feasibility of transfers with EBMUD and other local water suppliers as part of its 2040 Water Resources Plan (Woodard & Curran, 2018) and Strategic Water Supply Assessment (Marin Water, 2023), and as part of its involvement in the Bay Area Regional Reliability Drought Contingency Plan. The 2040 Water Resources Plan recommended that the District explore groundwater partnering opportunities with a partner that uses groundwater supplies to implement an in-lieu groundwater recharge program. The conjunctive groundwater use is part of Sonoma Water's resiliency planning efforts and the District hopes to participate in a future project.

6.8 Future Water Projects

☒ **CWC §10631** *A plan shall be adopted in accordance with this chapter and shall do all of the following:*

(b) (3) For any planned sources of water supply, a description of the measures that are being undertaken to acquire and develop those water supplies.

(f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single-dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The District has actively worked to identify and advance its most promising and cost-effective projects while remaining flexible to new information and opportunities. In 2017, the District prepared the 2040 Water Resources Plan to evaluate various potential projects to increase supply reliability in the future. Following the 2020-2022 drought emergency, the District prepared the Strategic Water Supply Assessment (SWSA) in 2023 to consider and develop a robust set of water management alternatives and portfolios to address supply availability under various future scenarios. The resulting long-term, adaptive strategy was designed to ensure a reliable, resilient water supply which can be found, along with the

SWSA, at <https://marinwater.org/yourwater/water-supply-planning/water-supply-roadmap/>. Because planning has not yet been completed for these projects, they are not reflected in **Table 6-8**.

Table 6-8 Expected Future Water Supply Projects or Programs (DWR Table 6-7)

☒	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.						
☒	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.						
6-16	Provide page location of narrative in the UWMP.						
Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	Water Type (after treatment if treated) (OPTIONAL)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier (a)
	Yes/no	If Yes, Supplier Name					

6.9 Summary of Existing and Planned Sources of Water

☒ **CWC §10631(b)**

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

☒ **CWC §10631(b)(2)**

When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

☒ **CWC §10631(b)(4)(D)**

A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Table 6-9 summarizes the actual sources and water supply volumes for 2025. **Table 6-10** summarizes the projected source and water supply volume in five-year increments over the next 25 years.

Projected water supplies from Sonoma Water reflect the anticipated purchases from Sonoma Water. The District's contract with Sonoma Water allows for purchases of up to 14,300 AFY. Projected surface water supplies are based on modelling performed by Woodard and Curran. Recycled and raw water projections were developed as part of the 2025 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update and are discussed in more detail in **Appendix B**.

Table 6-9 Water Supplies – 2025 Actual (DWR Table 6-8)

Water Supply	Additional Description (as needed)	2025		
		Water Type (after treatment if treated) (OPTIONAL)	Actual Volume	Total Entitlement (OPTIONAL)
Purchased or Imported Water	Sonoma Water	Potable	5,891	-
Surface water (not desalinated)	MMWD Lakes, treatment at SGTP or BTPP	Potable	15,289	-
Recycled Water	LGVSD RWTF	Non-Potable	633	-
Surface water (not desalinated)	Raw water	Non-Potable	151	-
Surface water (not desalinated)	Environmental releases from Kent and Soulajule Lakes	Non-Potable	9,241	-
Subtotal Potable			21,180	-
Subtotal Non-Potable			10,025	-
Total			31,205	-
NOTES: Volumes are in units of AF. Supplies may not equal Table 4-1 demands due to estimation of water loss and other non-revenue water.				

Table 6-10 Source Water Desalination by Urban Water Supplier (DWR Table 6-8 DS)

☒	Checked box indicates Supplier does not reduce salinity in either groundwater or surface water prior to distribution.										
Desalination Facility	Plant Capacity	Intake Type	Source Water Type	Influent TDS	Brine Discharge	Volume of Water Desalinated					Name(s) of Agencies Receive this Water
						2021	2022	2023	2024	2025	

Table 6-11 Water Supplies – Projected (DWR Table 6-9)

Water Supply	Additional Detail on Water Supply	Potable or Non-Potable (after treatment if treated)	Projected Water Supply (Report to the Extent Practicable)									
			2030		2035		2040		2045		2050	
			Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)
Purchased or Imported Water	Sonoma Water	Potable	5,300		5,300		5,300		5,300		5,300	
Surface water (not desalinated)		Potable	78,793		78,525		78,558		78,626		78,626	
Recycled Water		Non-Potable	656		656		656		656		656	
Surface water (not desalinated)	Raw water	Non-Potable	191		191		191		191		191	
Surface water (not desalinated)	Environmental releases	Non-Potable	10,300		10,300		10,300		10,300		10,300	
Subtotal Potable			84,093	0	83,825	0	83,858	0	83,926	0	83,926	0
Subtotal Non-Potable			11,147	0	11,147	0	11,147	0	11,147	0	11,147	0
Total			95,240	0	94,972	0	95,005	0	95,073	0	95,073	0

NOTES:

(a) Volumes are in units of AF.

(b) Reasonably available volume for Sonoma Water reflects the minimum contractual allotment from Sonoma Water. MMWD's contract with Sonoma Water allows for purchases of up to 14,300 AFY but includes a minimum supply of 5,300 AFY.

(c) Surface water volumes are estimated based on modeling performed by Woodard and Curran for the period of 2030 to 2045. The 2050 surface water volume is assumed to be the same as the 2045 volume. Environmental release supplies are equal to environmental release demand.

6.10 Special Conditions

Special conditions including climate change effects, regulatory conditions and project development, and other locally applicable criteria may affect supply availability, as described in the following subsections.

6.10.1 Climate Change Effects

As discussed in Sonoma Water's 2025 Urban Water Management Plan (Sonoma Water, 2026), Sonoma Water has been evaluating the effects of climate change. As stated by Sonoma Water in its Draft 2025 UWMP:

Sonoma Water has investigated whether downscaled climate models can be used or modified to provide reliable estimates of the effects of increased concentrations of carbon dioxide and other greenhouse gases on temperatures and precipitation patterns within Sonoma Water's service area and within the watersheds from which Sonoma Water obtains its water supply during the 25-year planning horizon.

Following prior work with the United States Geological Survey (USGS) to analyze how projected changes in climate may affect Russian River basin hydrology and unimpaired flows, Sonoma Water recently collaborated with DWR to develop a climate resilience plan for water resources within a study area that includes the Russian River Watershed and Sonoma Water's water supply service areas outside of the watershed (Sonoma Water, 2026 [in References of Sonoma Water's 2025 UWMP]). As part of this project, the climate change meteorological forcings used in the Russian River Basin Characterization Model (BCM) to develop future climate hydrology was updated with the latest downscaled Localized Constructed Analogs Version 2 (LOCA2) using Coupled Model Intercomparison Project Phase 6 (CMIP6) climate projections. The climate projections included 15 global circulation models (GCMs) and 3 Shared Socioeconomic Pathways for a total of 41 future climate scenarios simulated with the GCM. Analysis of the BCM simulated hydrology showed results that were consistent with previous climate change hydrology developed for the Russian River, as discussed in Section 3.2.1 (in Sonoma Water's 2025 UWMP). Additionally, the frequency of drought for most of the projections are consistent with historical hydrology.

Given the results of this analysis, this Plan assumes that the climatic patterns and associated hydrology experienced over the past 114 years of record (water years 1911-2024) provide a reasonable basis for the 25-year planning horizon that would impact the water supply and water demand analysis set forth in the Plan. However, Sonoma Water continues to study the effects of climate change and may adjust future assumptions accordingly. Customers of Sonoma Water, local planning agencies, and other people relying on this Plan as a reference for analysis of water supply availability are encouraged to check with Sonoma Water for the latest information and related assumptions.

Furthermore, Sonoma Water has developed the Sonoma Water Climate Adaptation Plan (CAP), a forward-looking plan that serves as a roadmap for Sonoma Water's assessment of climate risks and potential adaptation strategies related to its water supply, sanitation, and flood control infrastructure and operations (Sonoma Water, 2021). The CAP, finalized in 2021, guides Sonoma Water in terms of prioritizing and allocating resources towards practices and projects that will improve resiliency of its operations and facilities to climate variability and change.

Additionally, SGMA requires that GSPs include basin-wide water budget models under various climate change scenarios, including future conditions that account for the effects of estimated climate change. The water budget section of the Santa Rosa Plain GSA includes consideration of the effects of climate change for groundwater sustainability planning purposes.

Coping with inter-annual variability has always been a challenge for long-term water supply planning in the Bay Area, and climate change may intensify variability in coming decades. With potential additional changes imposed by climate change, there will be a heightened need to evaluate and respond to increased water supply variability.

The District's water supply comes from local runoff and the Russian River, which is dependent on local rainfall. Precipitation is stored in local reservoirs and released during the drier summer months. The District is currently storage-limited; existing storage capacity represents only about two years of demand. There are no remaining economically feasible sites for new surface water storage facilities, and the underlying groundwater basins are not considered feasible as a municipal supply source.

Historically, MMWD has been able to meet demands during prior periods of extreme drought with rationing, conservation, and increased purchases from Sonoma Water. Given that the District is storage-limited, it can and has experienced changes in storage very quickly. For example, from December 2012 to January 2014, MMWD experienced a period of very low precipitation, and its reservoirs reached significantly low storage conditions that nearly triggered significant mandatory reductions. Water supply circumstances then changed in early February 2014 when the district received 15 inches of rain, more than the total rain during the prior 400 days combined.

Over the last 30 years, mean sea level around the San Francisco Bay area has been observed to change between 0 and 3 millimeters per year (NOAA, 2021). Sea level rise associated with climate change also has the potential to negatively impact the District's service area. There are a number of developed low-lying areas within the District's service area that could become inundated with sea level rise. Other areas may see an increase in the regularity of flood events. This could result in reduced overall water use in the service area, or shifts in the location of uses, as customers are either forced or opt to move elsewhere.

As climate change advances, there is also a potential for increased ecological vulnerability to currently identified invasive species as well as to new invasive species. According to Cal WeedMapper, Marin County has over 150 invasive flora species, including water hyacinth (*elchhornia crassipes*), European beachgrass (*ammophila arenaria*), and red brome (*bromus madritensus* ssp. *rubens*). There are also 19 invasive flora species that, while not yet in Marin County, have been identified within 50 miles of the County. These include spotted knapweed (*centaurea maculosa*), alligator weed (*alternanthera philoxeroides*), and the South American spongeplant (*limnobium laevigatum*). There are also 11 invasive fauna species within Marin County, including the Asian estuarine mudsnail (*batillaria attramentaria*), the amethyst gem clam (*gemma gemma*), and the American oyster drill (*urosalpinx cinerea*). Invasive species could impact the District's water supply by negatively affecting water quality and infrastructure systems.

Climate change is expected to affect the District's supply as follows:

- Total precipitation is not projected to change significantly, although there may be less precipitation in the spring.
- Timing of runoff is expected to shift to earlier in the year, affecting reservoir storage, especially in the spring and summer months.
- Variability in annual precipitation is expected to continue, with vulnerability to droughts and dry periods.
- More intense storms anticipated that may affect surface water runoff and storage and stored water quality.
- Sea level rise could inundate some of the developed low-lying areas and increase flooding regularity in other areas.

The District's Water Resources Plan 2040 and Water Supply Roadmap both considered the impact of climate change on the District's supply. As part of the Water Resources Plan, climate change scenarios

were developed and modeled using Marin WaterSim, a dynamic systems model built within the commercial software GoldSim, to evaluate the District's water supply resiliency. The modeling used precipitation and inflow data for 2010 through 2099 for each of the District's lakes under four climate change models. Based on the modeling performed in 2017, there were no predicted shortages through 2040 under the modeled climate change scenarios, although overall reservoir levels were projected to significantly decrease under the modeled climate change conditions. These findings were incorporated into the recommendations in the Water Resources Plan and later into the Water Supply Roadmap.

6.10.2 Regulatory Conditions and Project Development

Emerging regulatory conditions may affect planned future projects and the characterization of future water supply availability and analysis. As the District moves forward with plans to develop supply projects, emerging regulatory conditions will be considered, and the associated water supply reliability impacts will be assessed in future UWMP updates.

6.10.3 Other Locally Applicable Criteria

Other locally applicable criteria may affect characterization and availability of an identified water supply (e.g., changes in regional water transfer rules may alter the availability of a water supply that had historically been readily available). As the District moves forward with projects to improve water supply reliability, it is considering locally applicable criteria such as local surface water hydrology, system limitations, and economic and environmental factors.

6.11 Energy Intensity

☒ CWC §10631.2

- (a) *In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:*
- (1) *An estimate of the amount of energy used to extract or divert water supplies.*
 - (2) *An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.*
 - (3) *An estimate of the amount of energy used to treat water supplies.*
 - (4) *An estimate of the amount of energy used to distribute water supplies through its distribution systems.*
 - (5) *An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.*
 - (6) *An estimate of the amount of energy used to place water into or withdraw from storage.*
 - (7) *Any other energy-related information the urban water supplier deems appropriate.*
- (b) *The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.*
- (c) *The Legislature finds and declares that energy use is only one factor in water supply planning and shall not be considered independently of other factors.*

The "Total Utility Approach" as defined by DWR in the 2025 UWMP Guidebook is used to report water-related energy-consumption data for the District. Fiscal year 2025 is selected as the one-year reporting period, and utility bills for the associated time period are used as the source for energy consumption data. Total energy consumed by the District during fiscal year 2025 based on reported utility bills is 14,518,201 kilowatt hours (kWh) to deliver 22,453 AFY of potable and non-potable water (excluding environmental releases). **Table 6-12** shows the energy consumed for each AF of water entering the distribution system in the District, including energy associated with extracting and diverting, placing into storage, treating, conveying, and distributing drinking water, but not including energy associated with the treatment of

wastewater. Based on this, the energy intensity is estimated to be 1,984 kilowatt hour per million gallons (kWh/MG), which is equal to 647 kWh/AF. Sonoma Water uses energy to treat and distribute water before delivery to the District. However, the energy is used outside of the District's service area, and the energy consumption information is not typically shared with the District.

Table 6-12b Recommended Energy Reporting: Single Delivery Product, Total Utility Approach (DWR Table O-1B)

Water Delivery Product	Multiple Products (if unable to use table O-1C)	Only for Water Delivery Products Under the Urban Water Supplier’s Operational Control		
Start Date of Reporting Period	7/1/2024	Sum of All Water Management Processes	Non-Consequential Hydropower	
End Date of Reporting Period	6/30/2025			
Is upstream embedded energy in the values reported?	No			
Units of Measure for Water	AF	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process		22,453		22,453
Energy Consumed (kWh)		14,518,201		14,518,201
Energy Intensity (kWh/vol. converted to MG)		1,984	-	1,984
Quantity of Self-Generated Renewable Energy				
0	kWh			
Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)				
Metered Data				
Data Quality Narrative:				
Utility bills for the associated time period are used as the source for energy consumption data.				
Narrative:				
Total energy consumption represents the energy consumed during pumping, treatment, conveyance and distribution.				

7 WATER SUPPLY RELIABILITY ASSESSMENT

☒ CWC §10620 (f)

An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

☒ CWC §10630.5

Each plan shall include a simple lay description of how much water the agency has on a reliable basis, how much it needs for the foreseeable future, what the agency's strategy is for meeting its water needs, the challenges facing the agency, and any other information necessary to provide a general understanding of the agency's plan.

This chapter describes the reliability of the District's water supplies. Assessment of water supply reliability is complex and dependent upon several factors, such as the number of water sources, regulatory and legal constraints, hydrological and environmental conditions, climate change, and expected growth, among others. Based on available historical information and projections of future water uses, regulatory and legal constraints, and hydrological and environmental conditions, including climate change, the District has made its best determination of future water supply reliability for the District, as described below.

7.1 Constraints on Water Sources

Purchased water from Sonoma County Water Agency (Sonoma Water) and local surface water are the primary supply sources for the District. Several factors pose potential constraints on the District's water supply, including limits on the amount available, water quality, climatic conditions, or a combination of these. **Table 7-1** lists the District's sources of water supply and the potential factors that could impact the District's supply. These constraints, along with associated management strategies, are summarized in the following sections.

Table 7-1 Potential Supply Constraints

Factors	Sonoma Water Supply	District Produced Surface Water	Recycled Water
Limitation Quantification	Quantity limited by contractual limits and available pipeline capacity. When pipeline capacity impacts deliveries, the District/Sonoma Water will have to construct new conveyance facilities to supplement capacity.	Climatic variation could result in limited storage carryover.	None
Legal	Supplies could potentially be reduced subject to unanticipated regulatory requirements.	None	None
Environmental	Fish habitat protection could result in summertime diversion curtailments on the Russian River. Future supply increases may not be consistent due to delays in construction, approval of water rights applications, or environmental documentation.	Future increases in instream flow requirements could decrease supply.	None
Water Quality	None	None	Salt-water intrusion in low-lying areas of sewer collection system, in some parts of the District, could impact recycled water quality.
Climatic	Drought could reduce available surface water supply.	Drought could reduce available surface water supply.	Drought could reduce indoor water use, resulting in reduced wastewater flow and therefore reduced recycled water supply

7.1.1 Supply Availability

Additional information regarding supply availability, including under various hydrologic conditions, is provided here.

Purchased Water

The water available to Sonoma Water’s customers is constrained by both physical and legal constraints. The capacity of Sonoma Water’s transmission system is a physical constraint that can limit the District’s water supply from Sonoma Water. The District receives Sonoma Water supply through an 8-mile-long aqueduct, which is a 30, 36, and 42-inch diameter steel transmission main that runs from Sonoma Water’s Petaluma Aqueduct near Kastania Tank in south Petaluma. From Kastania Tank the water flows to Kastania pumpstation (owned by MMWD) then into the North Marin Aqueduct (owned by North Marin Water District) that the District (MMWD) has use of so long as there is capacity.

Legal constraints include the Amended and Restated Water Supply Agreement, Sonoma Water Rights, the Russian River Biological Opinion, and decommissioning of the Potter Valley Project.

The Amended and Restated Agreement (2025) states that Sonoma Water is not obligated to provide the District with more than 14,300 AFY and a minimum take-or-pay supply of 5,300 AFY. The Agreement also places seasonal limitations on water delivery rates, with deliveries limited to 25 MGD from November through April, and 12.5 MGD from May through October. The District may also request greater maximum deliveries, provided there is sufficient transmission system capacity and available water.

Sonoma Water incorporates water rights, the Russian River Biological Opinion, the Potter Valley Project, and climate change into its surface water modeling which was used to determine reliability for its 2025 UWMP. The following excerpt is from Sonoma Water's 2025 UWMP, Section 6.2 Reliability by Type of Year:

Sonoma Water's surface water supply is subject to reductions during dry years. When the Lake Sonoma water volume is less than 100,000 ac-ft before July 15, a 30 percent reduction of diversions compared to the same time period the previous year is required, as dictated by Sonoma Water's water rights permits and Decision 1610 and as described in Section 5.1.6.1. Sonoma Water's groundwater supply capacity is assumed to not be impacted by single-dry years given the short duration and low frequency of occurrence and Sonoma Water staff analysis of existing pumping data.

Sonoma Water will continue to work with its customers to conjunctively manage Russian River and groundwater supplies to promote sustainability of these resources. These strategies may include using groundwater supplies during hydrologic dry years for the Russian River or conversely, reducing groundwater pumping from non-Russian River aquifers during years when there are high Russian River flows. In addition, as discussed in Sections 5.2 and 5.3, Sonoma Water and its partners continue to advance ASR projects and explore groundwater recharge and banking opportunities to enhance long-term water supply reliability in the region.

The following excerpt from Section 6.3 of Sonoma Water's 2025 UWMP summarizes Sonoma Water's reliability assessment:

The overall conclusion is that Sonoma Water has adequate water supply through the 2050 planning horizon of this Plan for all scenarios. Although it never gets triggered in the model simulations, if storage levels in Lake Sonoma drop below 100,000 ac-ft prior to July 15th, it would require demand curtailments by Sonoma Water customers per Decision 1610 (Section 5.1.6.1) for some portion of the year. In these circumstances, Sonoma Water will work with its customers to reduce water demands as described in the WSCP (Appendix C), or to utilize additional local sources, or both.

District-Produced Surface Water

As described in Section 6.3, the District has an average annual runoff of 83,000 AF (10-year average). The range of annual runoff received into the reservoirs ranges widely from a low of 4,000 AF in 1977 to over 212,000 AF in 2017. The District is authorized to store and divert water from the local watershed by the permits listed in **Table 6-2**. Future availability of local surface water could be impacted by future changes in climate, in-stream flow requirements, watershed quality, or other constraints.

Recycled Water

As described in Section 6.5.1, LGVSD provides the District with recycled water that is treated to a level that meets or exceeds California's Title 22 recycled water standard. LGVSD's RWTF can produce 5 mgd of recycled water. The District has a close working relationship with the LGVSD. Prior to each irrigation

season (April through October), the District provides a written estimate of the quantity of recycled water that will be needed for the season. The LGVSD attempts to provide the District with enough recycled water to meet its projected demand, and if the LGVSD is not able to meet the entire demand of the recycled water system, the system is supplemented by potable water.

7.1.2 Water Quality

☒ CWC §10634

The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Impaired water quality also has the potential to affect water supply reliability. The District has and will continue to meet all state and federal water quality regulations. All drinking water standards are set by the U.S. Environmental Protection Agency (USEPA) under the authorization of the Federal Safe Drinking Water Act of 1974. In California, the SWRCB Division of Drinking Water (DDW) can either adopt the USEPA standards or set more stringent standards, which are then codified in Title 22 of the CCR. There are two general types of drinking water standards:

- **Primary Maximum Contaminant Levels (MCLs)** are health protective standards and are established using a very conservative risk-based approach for each constituent that takes into potential health effects, detectability and treatability, and costs of treatment. Public water systems may not serve water that exceeds Primary MCLs for any constituent.
- **Secondary MCLs** are based on the aesthetic qualities of the water such as taste, odor, color, and certain mineral content, and are considered limits for constituents that may affect consumer acceptance of the water.

The District routinely monitors the water that is treated and served to customers to ensure that water delivered to customers meets these drinking water standards. The results of this testing are reported to the SWRCB DDW following each test and are summarized annually in Water Quality Reports (also known as “Consumer Confidence Reports”), which are provided to customers by mail and made available on the District’s website at <https://www.marinwater.org/water-quality>.<https://www.marinwater.org/water-quality#button-1>.

Five of the seven local surface water reservoirs are located in a District-owned and protected watershed that substantially reduces the potential for contamination. The two reservoirs outside the protected watershed are located in rural areas with low population densities that are maintained by strict zoning requirements. In addition, the district has established Watershed Protection Agreements with landowners in these watersheds. Accordingly, the excellent water quality that the district has historically enjoyed is expected to continue into the future. There have been no instances when water quality issues have limited water supply or affected reliability.

Given the District’s proactive monitoring and management of water quality in its source water supplies, water quality is not expected to impact the reliability of the District’s available potable water supplies within the planning horizon (i.e., through 2050).

7.1.3 Climate Change

☒ **CWC §10631 (b) (1)**

...For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

Section 4.4 of this UWMP presents information on how the impacts of climate change are considered in projected demands in the District, and Section 6.10.1 provides a summary of potential climate change impacts on supplies.

7.2 Reliability by Type of Year

☒ **CWC §10631 (b)**

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following:

☒ **CWC §10631 (b)(1)**

A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

☒ **CWC §10635 (a)**

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Consistent with the 2025 UWMP Guidebook, the water service reliability assessment includes three unique types of years based on hydrologic conditions:

- A normal hydrologic year represents the water supplies available under normal conditions; this could be an average over a range of years or a single representative year,
- A single dry year represents the lowest available water supply, and
- A five-consecutive year drought represents the driest five-year period in the historical record.

Identification of these dry year periods consistent with the 2025 UWMP Guidebook methodology is provided below.

Table 7-2 Basis of Water Year Data (Reliability Assessment) (DWR Table 7-1)

		Available Supplies if Year Type Repeats	
		☒	Checked box indicates quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location: Sections 7.2.1 - 7.2.4
Year Type	Base Year	Volume Available	% of Average Supply
Average Year	2004		100%
Single-Dry Year	1977		
Consecutive Dry Years 1st Year	1987		
Consecutive Dry Years 2nd Year	1988		
Consecutive Dry Years 3rd Year	1989		
Consecutive Dry Years 4th Year	1990		
Consecutive Dry Years 5th Year	1991		

7.2.1 Purchased Water

Sonoma Water reviewed historical hydrologic data for its system, and has identified 1999 as the basis for its average year supply, 1977 as the basis for single-dry year supply, and the period of 1987-1991 as the basis for a five-year drought supply. As described in Section 7.1.1, Sonoma Water expects that its supply will be sufficient to meet customers' projected demands under all year types. As part of development of its 2025 UWMP, Sonoma Water requested purchased water projections from each member agency for incorporation into reliability modeling, and are therefore carried forward into the District's purchased water reliability assumptions.

Purchases from Sonoma Water are assumed to increase in dry years to supplement available local surface water supplies. In average years, Sonoma Water purchases are assumed to be equal to the District's minimum purchase requirement of 5,300 AF. In single dry and multiple dry years, projected demand for Sonoma Water purchases are expected to start at 8,500 AF in 2030, and increase to 10,000 AF from 2035 through 2050, as shown in **Table 7-3**.

Table 7-3 Projected Availability of Sonoma Water Supply (Responds to DWR Table 7-1)

Year Type		Base Year	2030	2035	2040	2045	2050
Normal Year		2004	5,300	5,300	5,300	5,300	5,300
Single-Dry Year		1977	8,500	10,000	10,000	10,000	10,000
Extended Drought	First Year	1987	8,500	10,000	10,000	10,000	10,000
	Second Year	1988	8,500	10,000	10,000	10,000	10,000
	Third Year	1989	8,500	10,000	10,000	10,000	10,000
	Fourth Year	1990	8,500	10,000	10,000	10,000	10,000
	Fifth Year	1991	8,500	10,000	10,000	10,000	10,000
NOTES: (a) Volumes are in units of AF.							

7.2.2 Surface Water

The projected availability of local surface water supplies by type are provided in **Table 7-4** below.

Table 7-4 Projected Availability of Local Surface Water Supply (Responds to DWR Table 7-1)

Year Type		Base Year	2030	2035	2040	2045	2050
Normal Year		2004	78,793	78,525	78,558	78,626	78,626
Single-Dry Year		1977	44,013	44,009	44,013	44,023	44,023
Extended Drought	First Year	1987	71,436	71,434	71,436	71,441	71,441
	Second Year	1988	76,189	76,216	76,188	76,136	76,136
	Third Year	1989	80,927	80,896	80,930	81,007	81,007
	Fourth Year	1990	67,471	67,502	67,470	67,401	67,401
	Fifth Year	1991	64,208	64,245	64,206	64,102	64,102
NOTES: (a) Volumes are in units of AF. (b) Supplies are estimated based on modeling performed by Woodard and Curran.							

7.2.3 Recycled Water

Supply availability for recycled water is not assumed to be impacted in dry years, as reflected in **Table 7-5** below, and is consistent with the demand projections identified in **Table 6-11**.

Table 7-5 Projected Availability of Recycled Water Supply (Responds to DWR Table 7-1)

Year Type		2030	2035	2040	2045	2050
Normal Year		656	656	656	656	656
Single-Dry Year		656	656	656	656	656
Extended Drought	First Year	656	656	656	656	656
	Second Year	656	656	656	656	656
	Third Year	656	656	656	656	656
	Fourth Year	656	656	656	656	656
	Fifth Year	656	656	656	656	656
NOTES: (a) Volumes are in units of AF.						

7.2.4 Raw Water

Supply availability for raw water is not assumed to be impacted in dry years, as reflected in **Table 7-6** below, and is consistent with the demand projections identified in **Table 4-5**.

Table 7-6 Projected Availability of Raw Water Supply (Responds to DWR Table 7-1)

Year Type		2030	2035	2040	2045	2050
Normal Year		191	191	191	191	191
Single-Dry Year		191	191	191	191	191
Extended Drought	First Year	191	191	191	191	191
	Second Year	191	191	191	191	191
	Third Year	191	191	191	191	191
	Fourth Year	191	191	191	191	191
	Fifth Year	191	191	191	191	191
NOTES: (a) Volumes are in units of AF.						

7.3 Supply and Demand Assessment

☒ **CWC §10635(a)**

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

As identified in Section 7.2 and associated tables, water supply availability differs for the District's supply sources during normal, single dry, and multiple dry years. **Table 7-7** shows the projected supply and demand totals for a normal year, consistent with those in **Table 6-11** and **Table 4-4**. **Table 7-8** shows the projected supply and demand totals for a single dry year, and **Table 7-9** shows the projected supply and demand totals for multiple dry year periods extending five years. The District is projected to have sufficient supplies to meet projected demands in normal years, single dry years, and multiple dry years through 2050.

Table 7-7 Normal Year Supply and Demand Comparison (DWR Table 7-2)

	2030	2035	2040	2045	2050
Supply totals (from Table 6-11 [DWR Table 6-9])	95,240	94,972	95,005	95,073	95,073
Use totals (from Table 4-5 [DWR Table 4-2])	36,021	36,875	37,145	37,468	37,822
Surplus/(shortfall)	59,219	58,097	57,860	57,605	57,251
NOTES: Volumes are in units of AF.					

Table 7-8 Single Dry Year Supply and Demand Comparison – District Total (DWR Table 7-3)

	2030	2035	2040	2045	2050
Supply totals (b)	53,360	54,856	54,860	54,870	54,870
Use totals (from DWR Table 4-2)	36,021	36,875	37,145	37,468	37,822
Surplus/(shortfall)	17,339	17,981	17,715	17,402	17,048
NOTES: (a) Volumes are in units of AF. (b) Supply totals are summed from single dry year values provided in Table 7-3 through Table 7-6 . (c) Use totals are from Table 4-5 (DWR Table 4-2)					

Table 7-9 Five Consecutive Dry Years Supply and Demand Comparison (DWR Table 7-4)

		2030	2035	2040	2045	2050
First year	Supply totals (b)	80,783	82,281	82,283	82,288	82,288
	Use totals (c)	36,021	36,875	37,145	37,468	37,822
	Surplus/(shortfall)	44,762	45,406	45,138	44,820	44,466
Second year	Supply totals (b)	85,536	87,063	87,035	86,983	86,983
	Use totals (c)	36,021	36,875	37,145	37,468	37,822
	Surplus/(shortfall)	49,515	50,188	49,890	49,515	49,161
Third year	Supply totals (b)	90,274	91,743	91,777	81,854	81,854
	Use totals (c)	36,021	36,875	37,145	37,468	37,822
	Surplus/(shortfall)	54,253	54,868	54,632	44,386	44,032
Fourth year	Supply totals (b)	76,818	78,349	78,317	78,248	78,248
	Use totals (c)	36,021	36,875	37,145	37,468	37,822
	Surplus/(shortfall)	40,797	41,474	41,172	40,780	40,426
Fifth year	Supply totals (b)	73,555	75,092	75,053	74,949	74,949
	Use totals (c)	36,021	36,875	37,145	37,468	37,822
	Surplus/(shortfall)	37,534	38,217	37,908	37,481	37,127
NOTES: (a) Volumes are in units of AF. (b) Supply totals are summed from multiple dry year values provided in Table 7-3 through Table 7-6 . (c) Use totals are from Table 4-5 (DWR Table 4-2)						

7.4 Water Supply Management Tools and Options

☒ CWC §10620 (f)

An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

The District's *Water Resources Plan 2040* dated March 2017 (Water Resources Plan; MMWD, 2017) evaluated various options and tools to improve water supply resiliency. A total of 40 resiliency options were developed and grouped into alternatives to be evaluated. Based on the analysis, the Water Resources Plan recommended the "Expand Existing Programs" alternative, which focused on increasing conservation, investing in watershed management, and exploring groundwater partnering opportunities.

Following development of the Water Resources Plan and after the 2020-2022 drought emergency, the District prepared its Water Supply Roadmap, which is a long-term adaptive strategy designed to ensure a reliable, resilient water supply. The Roadmap, described in Section 6.8, identifies a portfolio of projects to address projected supply gaps and changing climate conditions.

In addition, the District is a member of the North Bay Water Reuse Authority (NBWRA), which is a regional water recycling organization formed to put recycled water to its broadest and most beneficial use. NBWRA consists of ten local agencies covering 315 square miles in the portions of Marin, Sonoma, and Napa counties that surround the northern rim of the San Francisco Bay. As part of NBWRA, the District has made great strides to expand recycled water use.

The District has begun work to upgrade to the Kastania Pump Station to optimize the capacity of the pipeline from Sonoma Water by installing new variable speed pumps, and expects work to be complete in 2027. The District also continues to work to expand the use of recycled water to include non-irrigation uses.

7.5 Drought Risk Assessment

☒ CWC §10635(b)

Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) 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 five consecutive water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) 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.

In addition to the long-term water service reliability assessment presented above, the Drought Risk Assessment evaluates the District's supply risks under a severe drought period lasting for the next five consecutive years after the assessment is completed, i.e., from 2026 through 2030. The Drought Risk Assessment is intended to inform the demand management measures (DMMs) and water supply projects and programs to be included in the UWMP (**Section 9**). Suppliers may conduct an interim update or updates to this Drought Risk Assessment within the five-year cycle of its UWMP update (i.e., before the 2030 UWMP).

7.5.1 Data, Methods, and Basis for Water Shortage Condition

This evaluation considers historical drought hydrology and plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

As a first step to the Drought Risk Assessment, the District estimated unconstrained water demand for the next five years (i.e., 2026-2030). Unconstrained water demand is the expected water use in the absence of drought water use restrictions. The characteristic five-year water demand is described in Section 4.5.5.4.5.5.

The available potable water supplies assumed in the Drought Risk Assessment are based upon the same methodology and assumptions used for the long-term water service reliability assessment (Section 7.2). The approach for estimating District's available supplies follow below, as part of the Drought Risk Assessment.

7.5.2 Drought Risk Assessment - Individual Water Source Reliability

As described in Section 7.1, the District relies on water purchases from Sonoma Water, as well as local surface water supply and recycled water. The District's available supplies during the five-consecutive-year drought are based supply reliability information provided by Sonoma Water, as well as local supplies available in 2030 under a 5-year drought as described in Sections 7.2.2 through 7.2.4.

7.5.3 Drought Risk Assessment - Total Water Supply and Use Comparison

Table 7-10 provides a comparison of the water supply sources available to District with the total projected water use for an assumed drought period of 2026 through 2030.

The District's supply is expected to be sufficient to meet demands in all hydrologic conditions, including an extended five-year drought period. **Table 7-10** also summarizes planned WSCP actions that District will implement to augment supply and/or reduce demands (see **Appendix G**).

Table 7-10 Five-Year Drought Risk Assessment Tables (DWR Table 7-5)

2026	Total
Total Water Use	32,433
Total Supplies	80,783
Surplus/Shortfall without WSCP Action	48,350
2027	Total
Total Water Use	33,609
Total Supplies	85,536
Surplus/Shortfall without WSCP Action	51,927
2028	Total
Total Water Use	34,786
Total Supplies	90,274
Surplus/Shortfall without WSCP Action	55,488
2029	Total
Total Water Use	35,962
Total Supplies	76,818
Surplus/Shortfall without WSCP Action	40,856
2030	Total
Total Water Use	37,138
Total Supplies	73,555
Surplus/Shortfall without WSCP Action	36,417
NOTES: Volumes are in units of AF.	

7.5.4 Risk Assessment Projections – Extreme Drought Scenario

As part of the District’s drought supply projection modelling efforts, an alternative drought risk assessment scenario was also explored. Under this scenario, an extreme drought event was assessed in accordance with the Short and Severe 4-year drought scenario of the Strategic Water Supply Assessment. **Table 7-11** shows a comparison between projected supplies and demands (including reservoir evaporation) for the final four years of the 2025-2050 UWMP planning horizon, from 2047 through 2050. Under this scenario, supply shortfalls would result in implementation of the WSCP water use reduction actions beginning in 2047. A resulting supply shortfall of 5,926 AF occurs in Year 4 of the scenario.

Table 7-11 Four-Year Drought Risk Assessment Tables - Extreme Drought Scenario

2047	Total
Total Water Use	40,375
Total Supplies	90,924
Surplus/Shortfall without WSCP Action	50,549
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	2,646
Revised Surplus/(shortfall)	53,195
Resulting % Use Reduction from WSCP action	10%
2048	Total
Total Water Use	39,437
Total Supplies	68,804
Surplus/Shortfall without WSCP Action	29,367
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	5,307
Revised Surplus/(shortfall)	34,674
Resulting % Use Reduction from WSCP action	20%
2049	Total
Total Water Use	38,660
Total Supplies	52,031
Surplus/Shortfall without WSCP Action	13,372
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	5,321
Revised Surplus/(shortfall)	18,692
Resulting % Use Reduction from WSCP action	20%

Table 7-11 (continued) Four-Year Drought Risk Assessment Tables - Extreme Drought Scenario

2050	Total
Total Water Use	38,032
Total Supplies	26,771
Surplus/Shortfall without WSCP Action	-11,261
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	5,335
Revised Surplus/(shortfall)	-5,926
Resulting % Use Reduction from WSCP action	20%
NOTES: (a) Volumes are in units of AF. (b) Resulting % use reduction from WSCP action is calculated based on potable demands only.	

8 WATER SHORTAGE CONTINGENCY PLANNING

☒ CWC §10640

(a) Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

(b) Every urban water supplier required to prepare a water shortage contingency plan shall prepare a water shortage contingency plan pursuant to Section 10632. The supplier shall likewise periodically review the water shortage contingency plan as required by paragraph (10) of subdivision (a) of Section 10632 and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

The WSCP for the District is included in this UWMP as **Appendix G**. The WSCP was last updated in February 2023 and adopted by the District on 9 January 2024. The WSCP was reviewed in light of the District's current water supply reliability analysis, and has determined that the WSCP continues to adequately enable the District to prepare for and respond to various levels of shortage as required by statute.

The WSCP serves as a standalone document to be engaged in the case of a water shortage event, such as a drought or supply interruption, and defines specific policies and actions that will be implemented at various shortage level scenarios. The primary objective of the WSCP is to ensure that the District has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. Consistent with CWC §10632, the WSCP includes six levels to address shortage conditions ranging from up to 10% to greater than 50% shortage, identifies a suite of demand mitigation measures for the District to implement at each level, and identifies procedures for the District to annually assess whether or not a water shortage is likely to occur in the coming year, among other things. In cases where Executive Order N-7-22 mandates are more stringent than the WSCP, the more stringent mandates shall supersede the mandates in the WSCP.

A summary of the key elements of the WSCP including water shortage levels and demand-reduction actions is shown in **Table 8-1**, **Table 8-2** and **Table 8-3**. Additional details are provided in **Appendix G**.

Table 8-1 Water Shortage Contingency Plan Levels (DWR Table 8-1)

☒	Checked box indicates the supplier uses the standard six levels of water shortage.	
Shortage Level	Percent Shortage Range	Shortage Response Actions
0	0%	Includes water waste prohibitions effective at all times.
1	Up to 10%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 70,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 8-2) as well as agency actions (see Table 8-3).
2	Up to 20%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 65,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 8-2) as well as agency actions (see Table 8-3).

☒	Checked box indicates the supplier uses the standard six levels of water shortage.	
Shortage Level	Percent Shortage Range	Shortage Response Actions
3	Up to 30%	• Total reservoir storage is at or is projected to be, or is, in the vicinity of 55,000 acre-feet on April 1st. • Includes implementation of mandatory restrictions on end uses (see Table 8-2) as well as agency actions (see Table 8-3).
4	Up to 40%	• Total reservoir storage is at or is projected to be, or is, in the vicinity of 45,000 acre-feet on April 1st. • Includes implementation of mandatory restrictions on end uses (see Table 8-2) as well as agency actions (see Table 8-3).
5	Up to 50%	• Total reservoir storage is at or is projected to be, or is, in the vicinity of 35,000 acre-feet on April 1st. • Includes implementation of mandatory restrictions on end uses (see Table 8-2) as well as agency actions (see Table 8-3).
6	>50%	• Total reservoir storage is at or is projected to be, or is, in the vicinity of 25,000 acre-feet on April 1st. • Includes implementation of mandatory restrictions on end uses (see Table 8-2) as well as agency actions (see Table 8-3).

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
Landscape Irrigation				
0, 1, 2, 3, 4, 5, 6	Other landscape restriction or prohibition	5%	The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited.	Y
0, 1, 2, 3, 4, 5, 6	Restrict or prohibit runoff from landscape irrigation	5%	Irrigation shall not be conducted in a manner or to an extent that allows water to run off or overspray the areas being watered. Every customer is required to have his or her water distribution lines and facilities under control at all times to avoid water waste.	Y
0, 1, 2, 3, 4, 5, 6	Limit landscape irrigation to specific times	5%	Any landscape irrigation between the hours of 9:00 a.m. and 7:00 p.m. is prohibited. Necessary testing and repair of irrigation systems for the purpose of eliminating water waste is permitted during the hours of 9:00 a.m. and 7:00 p.m. Customers shall maintain appropriate documentation of any necessary testing and repairs for these purposes. For example, this documentation may include, but not be limited to, any applicable reports, invoices, photos, videos, and/or receipts for materials and labor related to the testing and repairs.	Y

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
0, 1, 2, 3, 4, 5, 6	Limit landscape irrigation to specific days	5%	Increase restrictions on irrigation. For example, operating outdoor irrigation systems using potable water for the purpose of irrigating with overhead spray more than two days, as assigned by the District, within any calendar week may be prohibited. For the purposes of this section, “calendar week” shall mean a period running from Monday-Sunday.	Y
0, 1, 2, 3, 4, 5, 6	Other landscape restriction or prohibition	5%	Irrigating ornamental turf on public street medians is prohibited.	Y
3	Prohibit certain types of landscape irrigation	30%	Golf course irrigation, with potable or raw water, shall be irrigated up to 70% of the sites Maximum Applied Water Allowance per District Water Efficient Landscape Code WSCP.	Y
4	Limit landscape irrigation to specific days	40%	Limit irrigation to 1 day per week, assigned by the District.	Y
4	Prohibit certain types of landscape irrigation	40%	Golf course irrigation, with potable or raw water, shall be irrigated up to 60% of the sites Maximum Applied Water Allowance per District Water Efficient Landscape Code WSCP.	Y

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
5	Other landscape restriction or prohibition	50%	Irrigation restricted to maintain tree health for all potable and raw water customers, including golf courses.	Y
5	Other	50%	Establish, or implement, Water Use Limits and associated penalties.	Y
Restrictions on Consumer Products				
0, 1, 2, 3, 4, 5, 6	Other	5%	The installation of reverse osmosis water purifying systems not equipped with an automatic shutoff unit is prohibited.	Y
0, 1, 2, 3, 4, 5, 6	Pools and Spas - Require covers for pools and spas	30%	All recreational pools and spas shall have covers.	Y
Restrictions on New Connections and Landscaping				
0, 1, 2, 3, 4, 5, 6	Other	5%	Single pass cooling systems for air conditioning or other cooling system applications are prohibited, unless required for health or safety reasons.	Y
0, 1, 2, 3, 4, 5, 6	Other	5%	New non-recirculating systems for conveyer car wash applications is prohibited.	Y
4, 5, 6	Other	40%	No installation of new landscapes including no expansion of existing landscapes.	Y

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
5	Moratorium or Net Zero Demand Increase on New Connections	50%	The Board shall consider a moratorium on new water service connections, or no net water use requirements for new connections.	Y
6	Other	55%	New water service applications will not be granted.	Y
6	Other	55%	The use of potable water for any purpose other than human health and sanitation is prohibited.	Y
Restrictions on Commercial Operations				
0, 1, 2, 3, 4, 5, 6	Lodging establishment must offer opt out of linen service	5%	Lodging establishments must provide patrons the option of not having towels and linen laundered daily.	Y
0, 1, 2, 3, 4, 5, 6	Restaurants may only serve water upon request	5%	Drinking water served upon request only.	Y
Other				
0, 1, 2, 3, 4, 5, 6	Prohibit use of potable water for washing hard surfaces	5%	The washing of sidewalks, walkways, driveways, parking lots and all other hard surfaced areas by direct hosing, except as may be permitted by current regulations pertaining to urban water runoff pollution prevention as defined by the Marin County Stormwater Pollution Prevention Program and other controlling agencies.	Y

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
0, 1, 2, 3, 4, 5, 6	Customers must repair leaks, breaks, and malfunctions in a timely manner	5%	The escape of water through breaks or leaks within the consumer's plumbing or private distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 48 hours after the consumer discovers such a leak or break, or receives notice from the district of such leak or break, whichever occurs first, is a reasonable time within which to correct such leak or break.	Y
0, 1, 2, 3, 4, 5, 6	Other	5%	Gutter flooding is prohibited.	Y
3, 4, 5, 6	Other	30%	Use of potable water for refilling or make-up water of any decorative water features, is prohibited.	Y
2, 3, 4, 5, 6	Other	20%	Implement drought rates consistent with District-wide targeted water savings.	N
5, 6	Other landscape restriction or prohibition	50%	Refilling a completely drained swimming pool and initial filling of any swimming pool for which application for a building permit was made after District specified date.	Y
0, 1, 2, 3, 4, 5, 6	Require automatic shutoff hoses	5%	Using a garden hose without a shut-off nozzle is prohibited.	N

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
0, 1, 2, 3, 4, 5, 6	Other	5%	Any excess water runoff flowing onto the public right of-way at a rate of one gallon per minute or greater not caused by storm water or naturally occurring groundwater is prohibited.	Y
0, 1, 2, 3, 4, 5, 6	Other	5%	Use of private fire lines or private fire taps for any purposes other than fire suppression and necessary testing is prohibited.	Y
3, 4, 5, 6	Other	30%	Washing vehicles with potable water except at commercial carwash facilities that use recycled water, is prohibited.	Y
3, 4, 5, 6	Other	30%	Power-washing any structure using potable water, unless required for health and safety as required by Marin County Health Department.	Y
3, 4, 5, 6	Limit use of potable water for construction and dust control	30%	Use of potable water for dust control, soil compaction, street cleaning, or any other use, as determined by the District, which can be met with disinfected tertiary recycled water.	Y
0, 1, 2	Other	5%	Sewer cleaning/flushing should be done using recycled water when available without hauling by truck and whenever reasonably possible.	Y
3, 4, 5, 6	Other	30%	Limit sewer cleaning/flushing to only recycled water.	Y

Table 8-2 Demand Reduction Actions (DWR Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement?
4, 5, 6	Other	40%	Request that local fire departments limit training exercises that use potable water and cease hydrant testing.	Y
6	Other	50%	Request that local fire departments cease training exercises that use potable water and cease hydrant testing.	Y
NOTES: (a) The reductions shown are the combined reductions for all the actions associated with the particular shortage level.				

Table 8-3 Supply Augmentation and Other Actions (DWR Table 8-2)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference (optional)
1	Increase supplemental water imports and closely monitor storage levels and weather conditions	Up to 5,000 AF	Range dependent on hydraulic capabilities
1	Enact dry year stream release flow reductions	Up to 100 AF	As defined under Water Right Order 95-17 and agreements with NMWD
2	Minimize system flushing	Unknown	Focus on water quality improvements
3	Increase water waste patrols	Unknown	
3	Restrict line flushing to include only regulatory compliance actions	Unknown	Flush for violations of water quality regulations or required disinfection for new construction and repairs
3	Increase system leak repair to prioritize class 2 leaks	Unknown	
3	Access Stored Emergency Supply	Unknown	Rental of generator for SoulaJule Reservoir to transfer water to Nicasio Reservoir
3	Access Stored Emergency Supply	Unknown	Initiate adjustments to pipe configuration to transfer water from Phoenix Lake to Bon Tempe Lake
4	Initiate Study/Application for Temporary Urgency Change Petition	Up to 2,500 AF	Change to environmental releases – possible reduction of migration flow volumes.
4	Increase water waste patrols	Unknown	
4	Increase system leak repair to prioritize class 1-3 leaks	Unknown	
4	Consider Declaration of Water Shortage Emergency	Unknown	
4	Initiate development of Emergency Supplemental Supplies	Unknown	
5	Consider a moratorium on new water service connections, or no net water use requirements for new connections	Unknown	

Table 8-3 Supply Augmentation and Other Actions (DWR Table 8-2)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference <i>(optional)</i>
5	Implement Water Use Limits and Penalties	Unknown	Long term
6	Decrease Water Use Limits and implement issuance of Penalties to align with health and Safety Water Allotment	Unknown	Conducting feasibility analysis

9 DEMAND MANAGEMENT MEASURES

☒ CWC §10631 (e)

Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

This section summarizes past and planned demand management measure (DMM) implementation in the District as well as an overview of the expected water savings.

9.1 Regional Water Conservation

As described in Chapter 2, the 13 Sonoma-Marín Saving Water Partnership (SMSWP) water suppliers in Sonoma and Marin Counties include the Cities of Santa Rosa, Rohnert Park, Petaluma, Sonoma, Cotati, Cloverdale, and Healdsburg, North Marin Water District, Valley of the Moon Water District, Town of Windsor, California American Water – Larkfield District, Sonoma Water, and the District (Partners). The SMSWP was formed in 2010 and its Memorandum of Understanding was amended in May 2018, extending the term by another ten years and adding language to streamline the addition of members to the SMSWP.

Sonoma Water coordinates the work of the SMSWP in conjunction with the Water Advisory Committee (WAC), which provides input to Sonoma Water and holds certain powers and responsibilities enumerated in the Restructured Agreement for Water Supply between Sonoma Water and SMSWP. The SMSWP is committed to continued water conservation and is in compliance with the final 2020 gallons per capita targets established by Senate Bill X7-7 as described in Chapter 5.

Funding

Sonoma Water's wholesaler water conservation programs are funded by the Partners annually through a WAC recommended budget that allocates a Water Conservation sub-charge for each acre-foot of water sold. The Partners agreed to expend \$15 million dollars on water conservation implementation from July 2018 through June 2028. They have also agreed to maintain membership in good standing with the California Water Efficiency Partnership (CalWEP) and implement or use best efforts to secure the implementation of any water conservation requirements added as terms or conditions of Sonoma Water's

appropriative water rights or other regulation or law. Sonoma Water pursues grant funding on behalf of the SMSWP to offset some of the programmatic costs associated with water use efficiency (WUE) programs and to test new technology.

Annual Report

The Partners are committed to implement water conservation measures that provide regional benefits and/or that may exceed the targets established from time to time by the Partners or the state. The Partners will implement or use best efforts to secure the implementation of any water conservation requirements and will publish an Annual Report to track progress. The Annual Report will track program implementation, highlight program milestones, and reinforce the importance of protecting and preserving water resources for future generations. The 2024/2025 Annual Report for the SMSWP could be found in the SMSWP's website.¹²

Public Outreach Program

The SMSWP develops an annual regional outreach campaign that aligns with the region's current water supply conditions and promotes water use efficiency programs. Sonoma Water, in collaboration with the members of the SMSWP, produces collateral material that aligns with the specific campaign. Sonoma Water coordinates an annual media buy that includes outreach in English and Spanish. Each member of the SMSWP can choose to supplement the campaign with their own media buys. The buys generally include the following:

- Radio (streaming and broadcast),
- Newsprint and online digital media placements in 14 various local publications,
- Sonoma County Fair presence,
- Social Media (Facebook, Twitter, Instagram, YouTube, NextDoor),
- Mall banners, and
- Movie theater trailers.

Regional Programs

Sonoma Water on behalf of the SMSWP implements numerous regional programs. This includes offering staff support for interested Partners as a cost-effective way to offer local programs to customers of smaller agencies. Some of these programs are:

- Qualified Water Efficient Landscaper Training Program – A low-cost professional certification program that educates landscapers about irrigation system auditing, while providing customers with a trusted source for knowledgeable hired help that can save them water.
- Eco-Friendly Garden Tour – An annual self-guided garden tour in Sonoma County and North Marin that promotes sustainable landscaping practices.
- Landscape Design Templates – These free, front yard designs are scalable to fit landscaped areas up to 2,500 square feet, ready-to-permit, and in compliance with local Water Efficient Landscape Ordinances.
- Water Smart Plant Label – A free water smart plant labeling program to local nurseries. The water smart plant label highlights low water use plants to nursery customers and promotes sustainable landscaping practices in Sonoma and Marin counties.

¹² The 2024-2025 Annual Report for the SMSWP: <http://www.savingwaterpartnership.org/wp-content/uploads/SMSWP-Annual-Report-2020-FINAL.pdf>.

9.2 Agency Water Conservation

☒ ☒ CWC § 10631 (e)

Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

The District's programs for demand management through water conservation began in 1971 when water conservation literature from the American Water Works Association was inserted into water bills. By the mid-1970s, the District's programs had expanded to include retrofits of water-using fixtures and have continued to expand over the last 45 years.

When the District was embarking on its Integrated Water Resources Management Program in 1991, a review of water demands found that an estimated 11% reduction in water use had occurred during the period from 1970 to 1987 after taking into account the additional services installed during the period. A similar review in 1999 found that the demand had been reduced by an estimated 25% during the period from 1970 to 1998.

In 2007, the District adopted its 2007 Water Conservation Master Plan, which was then updated in 2024, titled the Water Efficiency Master Plan (included in **Appendix H** for reference). The plan will be used to inform and guide the district's conservation efforts over the planning horizon. Additionally, as part of the 2025 UWMP Demand Analysis and Water Conservation Measures Update performed in 2024 a conservation measures analysis assessed potential future conservation programs and associated savings, which can be used by the District to help inform future program selection and implementation.

In late 2010, the District joined with Sonoma Water and the Water Contractors to form the SMSWP. SMSWP allows the District, Sonoma Water, and the Water Contractors to maximize cost-effective water conservation by identifying projects and programs that can be implemented regionally. SMSWP committed each signatory to remain in good standing with CalWEP, and to budget and spend \$15 million over 10 years for implementing water conservation programs.

The following sections describe the District's efforts in implementing each of the DMMs as listed in CWC §10631(f). Additional information regarding DMM implementation is provided in the District's 2025 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update (**Appendix B**).

9.3 Demand Management Measures for Retail Suppliers

The District centrally administers its conservation programs. For purposes of this section, these programs have been grouped in accordance with the DMM categories in CWC §10631(e). These categories are:

- (i) Water waste prevention ordinances
- (ii) Metering
- (iii) Conservation pricing
- (iv) Public education and outreach
- (v) Programs to assess and manage distribution system real loss
- (vi) Water conservation program coordination and staffing support, and

(vii) Other demand management measures

The following are descriptions of the conservation programs the District operates within each of these DMM categories.

9.3.1 DMM 1 – Water Waste Prevention Ordinances

Title 13 of the District’s Code, Water Service Conditions and Water Conservation Measures, includes a section on water waste prohibitions (Section 13.04.020). This section was updated in 2021 to explicitly state that the wasting of water is to be prohibited. The section prohibits nonessential uses, places restrictions on irrigation watering times, limits days per week of allowed irrigation and reverse-osmosis units, and includes prohibitions on single-pass cooling systems and non-recirculating systems for conveyor carwash applications for new connections. The current Title 13 of the District’s Code is included in **Appendix I**.

9.3.2 DMM 2 – Metering

☑☑ CWC §526 (a)

Notwithstanding any other provision of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract ... shall do both of the following:

(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings constructed prior to January 1, 1992, located within its service area.

(2) On and after March 1, 2013, or according to the terms of the Central Valley Project water contract in operation, charge customers for water based on the actual volume of deliveries, as measured by a water meter.

☑☑ CWC §527 (a)

(a) An urban water supplier that is not subject to Section 526 shall do both of the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

The District is fully metered and requires that all new connections be metered. The District requires separate landscape meters for qualified customers and has policies about the use of installed meters. For instance, Section 13.02.065 of the District’s Code states that “...use of any District water not metered is prohibited.” Additionally, Section 13.020.070 states that “it is unlawful [...] to remove, replace, alter, or damage any water meter or components thereof.” If a violator is found, the District may impose penalties as outlined in the ordinance.

The District continues to replace meters as they age. The continued objective of the meter replacement program is to achieve a 20-year life cycle for all meters. Tests performed indicate that meters older than 20 years run, on average, 6% slower than new meters. By replacing the oldest meters in the system on an ongoing basis, the meter change program improves overall meter accuracy and retains revenue that would otherwise be lost by inaccurate meters.

The District has installed advanced metering infrastructure (AMI) meters on approximately ten percent of its connections as of 2025, and anticipates to have installed AMI meters on all connections by 2035.

9.3.3 DMM 3 – Conservation Pricing

Conservation pricing sends a signal to customers about their water use and is always in place. The District’s rate structure encourages conservation by including both a fixed service charge and a per-unit charge,

reflecting both fixed costs and costs based on the amount of water used. The per-unit charge includes the cost of water supply, treatment and distribution, and watershed maintenance.

In May 2023, the District Board of Directors approved Ordinance No. 464, which enacts changes to the water rates and rate structure through June 2027. The changes in the rate structure include: (1) adjustment to the District’s current tiered rate structure to reflect reduced customer demand trends and better recover the cost of providing water; (2) modification to the District’s fixed fees, which includes converting the Watershed Management Fee to a uniform volumetric rate and incorporating customer demand metrics into the fixed fee calculation methodology; and (3) drought surcharges that would apply with declared water shortage levels, starting with Stage 2, in accordance with the District’s Water Shortage Contingency Plan in order to recover the District’s lost revenue and increased cost during water supply shortages. (MMWD, 2023).

To determine the per unit charge, the District uses a system of three or four billing tiers, depending on the customer class. The current rates went into effect on 1 July 2025 and are available on the District’s website: <https://marinwater.org/customer-services/understand-your-bill/>.

For residential customers, the District uses four tiers. For non-residential potable water, single-family residential irrigation, recycled, and raw water customers, the District uses three tiers.

Every non-residential and dedicated irrigation water service has a water budget that represents actual water needs for the service and is the District’s determination of the actual consumption requirement for that business or irrigable area without waste.

The water budget is used for billing purposes to determine the water service tier charges portion of the water bill. The water budget is divided over the billing periods, either monthly or bi-monthly. These monthly or bi-monthly allocations are referred to as the baselines. The baseline in each billing period determines how much water is charged at each billing tier.

9.3.4 DMM 4 – Public Education and Outreach

The District offers free water audits to residential and non-residential customers. During these water use surveys, a District representative evaluates the existing water-using fixtures, landscape irrigation system, and water use patterns to identify water savings opportunities. After the visit, the customer receives a written report of the existing water use patterns and a list of recommendations to increase efficiency. For large irrigation systems, the District offers a specialized large landscape water use survey. For residential customers, the District has a Do-It-Yourself home water survey that customers can print and work through the activities.

For all schools located within the District’s service area, MMWD offers several free programs, including watershed field trips, classroom presentations, and various materials intended to guide curriculum for various ages. All school programs are designed to support education standards while fostering water conservation and environmental stewardship. Between 2007 and 2020, 111,024 students have been reached, and an additional 29,500 students were reached from 2020 to 2025. The District also has a list of resources with links on their website that customers can access.

In addition to water use audits and school education, the District offers a number of rebates and discounts to its customers for water-saving fixtures and systems, which also serve to educate and inform customers of conservation opportunities. **Table 9-1** below shows the current conservation programs offered by the District.

Table 9-1 Current Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
AMI Leak Notification Program	Customers with AMI meters receive notifications of water use patterns indicative of leaks and are able to receive timely information and stop leaks much faster. Water Efficiency staff runs automated reports to monitor water use of AMI customers. AMI meters record water use in 15-minute intervals as compared to every other month as is typical for most residential meter reads.	All AMI enabled customers	2018-Current
Smart Home Monitors (Flume and Moen Flo Direct Distribution)	Residential customers can receive a \$136 discount on Smart Home Monitors which provide near real time water use monitoring and leak notifications	SFR	2020-current
SFR Water Use Surveys/Audits Program	A free service for SFR customers that involves a visit to their property to review water use and identify ways to save water indoors and outside.	SFR (Both)	1995 - Current
Water Use Surveys/Audits Program (Excluding SFR Participants)	Consultation activities include review, evaluation and report of indoor plumbing devices and/or a review and report of the landscape irrigation system.	MFR, CII, IRR (Outdoor)	1995 - Current
CII Water Use Evaluation Program	CII customers are provided with on-site water use evaluations, recommendations to improve efficiency, and pre-qualified for applicable rebates.	CII (Both)	1995 - Current
Water Waste Report Program	The general public can report water waste situations to MMWD online or over the phone. These contacts are logged into a database and followed up on by field staff to research and notify properties about water waste situations.	SFR, CII (Both)	1998, 2000 - Current
HET Rebate Program	The District rebates up to \$100 per HET and up to \$200 per Ultra High-Efficiency Toilet (UHET) when customers change their non-water conserving toilets (Pre 1993).	SFR (Indoor)	2007 - 2024

Table 9-1 Current Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
Residential HECW Rebate Program	Customers can apply for a rebate towards the cost of installing a qualifying residential high-efficiency clothes washer that meets current water and energy efficiency requirements.	SFR (Indoor)	1998-2010 2013 -2024
Hot Water Recirculating System	Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a hot water recirculating system to create a looped system to recirculate cold water back to the water heater.	SFR (Indoor)	2014 - Current
Pool Cover Rebate Program	Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a pool cover.	SFR (Outdoor)	2014 - Current
Laundry-to-Landscape System	2015: Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a 3-way diverter valve and/or air vent. Products must be installed as part of a residential laundry to landscape system that uses discharge water from a single domestic clothes washer in a one- or two-family dwelling. 2020: Single family or duplex residential customers can receive a \$125 value kit including a 3-way diverter valve and other supplies needed for installation of a residential laundry to landscape system that uses discharge water from a single domestic clothes washer in a one- or two-family dwelling.	SFR (Outdoor)	2015-2017 2020 - Current

Table 9-1 Current Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
Rain Barrel Rebate Program	2014-2019: Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a rain barrel to collect rainwater that can be used to supplement landscape irrigation. 2020: Residential and commercial customers with active potable water service can apply for a rebate up to \$0.50 per gallon of storage when they install rain barrels and/or cisterns at their sites. Total rebates for rain barrels and cisterns may not exceed \$1,000 per site. 2024: Residential and commercial customers with active potable water service can apply for a rebate up to \$0.75 per gallon of storage when they install rain barrels and/or cisterns at their sites. Total rebates for rain barrels and cisterns may not exceed \$1,000 per site.	SFR (Outdoor)	2014 - Current
WBIC Rebate Program	All customers can apply for a rebate of up to \$100 per irrigation controller when they purchase and install a weather-based irrigation controller to replace an existing standard controller.	All (Outdoor)	2013-2015 2020 - Current

Table 9-1 Current Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
SFR Turf Removal Program	2015-2016: MMWD customers participated in the state Save Our Water turf replacement program, which offered \$2/sq ft of turf removed. 2020-2021: MMWD customers eligible for \$3/sq ft for ceasing irrigation and not replanting until water shortage emergency was withdrawn. Alternatively, customers could participate in the Mulch Madness (drought sheet mulching) program. 2022-Current: Tiered rebate that includes a best practice (higher rebate of \$4.68/sq ft) for planting mostly native plant species, an alternative water source to the project and sheet mulching to the site. The Standard Rebate is available for turf conversion where best practices are not implemented for \$2.18/sq ft.	SFR (Outdoor)	2015-2016 2020 - Current
Organic Mulch Rebate Program	Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of organic mulch.	SFR (Outdoor)	2014-2022
Landscape Plan Review Program	Water conservation requirements for landscape professionals and homeowners when designing and installing landscapes and irrigation systems. Plan review requirements apply to all new construction and rehabilitated (renovations or changes made to sites with an existing irrigation system) landscape projects requiring a building permit, plan check, or design review.	SFR, CII (Outdoor)	1986 - Current

Table 9-1 Current Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
Tier 4 Exemption Program	An incentive program designed to help save water and lower customer's water bill. To qualify, customers must meet the District's current water conservation standards and pass a verification site visit. The customer's property then becomes exempt from Tier Four water rates for a four-year period. This means their water will be billed at no higher than Tier Three rates.	SFR (Both)	2004-Current
Water-wise Community Garden Program ("Garden Grant")	Up to \$5,000 is available for the installation of water-wise gardens in public spaces to provide local inspiration of turf conversion sites.	MFR, CII, IRR (Outdoor)	2020 - Current
Custom Rebate	Rebate for installing any equipment or technology that the District does not already have a rebate for that results in a sustained water reduction (materials only, not labor).	CII, MFR, IRR (Both)	2025 - Current
Abbreviations: Ag = Agriculture AMI = Advanced Metering Infrastructure CII = commercial, industrial, institutional HECW = High Efficiency Clothes Washer IRR = Irrigation MFR = Multifamily Residential MMWD = Marin Municipal Water District SFR = Single Family Residential sq ft = square feet WBIC = Weather-Based Irrigation Controller			

During the period of 2021 to 2024, the conservation department:

- completed a total of 5,700 audits/surveys;
- provided program activities for over 29,500 students;
- interacted with over 41,000 customers at public outreach events;
- incentivized installation of 527 high efficiency clothes washers, 135 high efficiency toilets, and 1,100 irrigation-related devices including high efficiency spray nozzles, rain sensors, drip system components, weather-based irrigation controllers, mulch, rain barrels, greywater system components at residential and commercial sites;
- provided rebates for replacement of 546,708 square feet of turf;
- conducted 6,017 water waste investigations; and
- responded to over 26,500 customer phone and email inquiries.

The District's 2025 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update (**Appendix B**) provides additional detail on implementation of these conservation programs.

9.3.5 DMM 5 – Programs to Assess and Manage Distribution System Real Loss

The District performs annual water loss audits in accordance with CWC §10608.34. These audits are prepared using the American Water Works Association (AWWA) Free Water Audit Software version 5.0 and validated by an AWWA California-Nevada Section-Certified California Water Audit validator prior to submission to DWR. The District has an active water loss control program, including primary and secondary response. Primary response is by Utility Systems Specialists on an incident-by-incident basis. Utility Systems Specialists are first responders to all reported leaks, mainline shutdowns for the crews and contractors, consumer calls, and meter turn-on/off. Secondary to any reported problem, the District has implemented a program to assess and manage system loss through leak survey. Leak survey is handled by Utility System Technicians. Leak survey is accomplished by canvassing the entire water distribution system. Using sonic leak detection equipment, technicians are able to locate leaks that may be hidden from view because they have not yet surfaced. Utility System Technicians also assist in pinpointing water leaks. The process of pinpointing water leaks involves the narrowing of a specific leak location. This process assists staff in completing repairs with a minimal amount of excavation.

The District has a proactive leak detection survey program. In addition, the District has an ongoing program (as part of its Capital Improvement Program) to replace aging distribution pipeline.

9.3.6 DMM 6 – Water Conservation Program Coordination and Staffing Support

The District has full-time staff members within the Water Conservation Department dedicated to implementing and overseeing the conservation program. The primary responsibilities of the Conservation Department include designing, developing, and implementing conservation programs for all MMWD customers. The Conservation Department also provides support to customers, including completing water use surveys and reports, answering any questions about conservation programs, and providing printed materials related to the District's conservation programs. The Conservation Department and its activities are funded by the general fund, which is supported by revenue from water sales.

Contact information for the District's Water Efficiency Manager is listed below:

Name: Carrie Pollard

Phone: (415) 945-1522

Email: cpollard@marinwater.org

9.3.7 DMM 7 – Other Demand Management Measures

Landscape Plan Review Services

Water conservation staff provide landscape plan review services for all municipal jurisdictions in MMWD's service area at no cost. Title 13 of the District's Code includes a section on water efficient landscaping that requires projects needing a building or landscape permit, plan check or design review. The plan review process consists of reviewing construction documents to verify compliance with efficiency standards, calculating a maximum applied water allowance (MAWA) and estimated total water use (ETWU), conducting a site inspection, and issuing a final letter of approval. On 9 December 2025, the District's Board of Directors approved changes to the landscape plan review requirements to be consistent with the 2025 State of California's Model Water Efficient Landscape ordinance (MMWD, 2026). From 2021 to 2024, conservation staff have conducted 387 landscape plan reviews.

Other Water Efficiency Codes

Title 13 of the District's Code documents all adopted codes related to water efficiency and conservation, codes. Current versions of these codes can be viewed here: <http://www.qcode.us/codes/marin-water/view.php?topic=13>.

9.4 Implementation to Achieve Water Use Targets and Urban Water Use Objectives

All the DMMs described above contributed to District's compliance with the Water Conservation Act of 2009 (SB X7-7) 2020 target gallons per capita per day (GPCD).

As described in **Section 4.8**, in July 2024, California enacted MCCWL regulation implementing SB 606 and AB 1668 to support long-term water conservation and drought resilience. Starting in 2023, CWC §10609 requires that urban retail water suppliers develop UWUOs that are based on specific standards for certain water use sectors. The District projects that its combination of active and passive conservation programs, as well as participation in regional conservation efforts, will allow it to meet its UWUOs.

10 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

☒ CWC §10621 (b)

Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

This section provides information on a public hearing, the adoption process for the UWMP and WSCP, the adopted UWMP and WSCP submittal process, plan implementation, and the process for amending the adopted UWMP or WSCP for the District.

10.1 Inclusion of All 2025 Data

This UWMP includes water use and planning data for the entire calendar year of 2025, per the 2025 UWMP Guidebook.

10.2 Notice of Public Hearing

☒ CWC §10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan and the water shortage contingency plan. Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies. Notices by a local public agency pursuant to this section shall be provided pursuant to Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

Prior to adopting the Plan, the District held a virtual public hearing to present information on its UWMP and WSCP on 16 June 2026 at 5:00PM.

The District sent a letter to relevant entities including Marin County and other local agencies informing them that the District was in the process of updating its UWMP and soliciting their input in the update process. These same entities were noticed again with the specific date, time and location of the hearing at least two weeks prior to the public hearing. The notice to the public, as specified in California Government Code (CGC) §6066, and letters to relevant agencies can be found in **Appendix C** and **Appendix D**, respectively.

10.2.1 Notice to Cities and Counties

☒ **CWC §10631 (a)** A plan shall be adopted in accordance with this chapter that shall do all of the following:

Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

Table 10-1 lists the cities and counties that were notified. Copies of these letters are provided in **Appendix C**.

Table 10-1 Notification to Cities and Counties (DWR Table 10-1)

City Name	60 Day Notice	Notice of Public Hearing
City of Belvedere	X	X
City of Larkspur	X	X
City of Mill Valley	X	X
City of Novato	X	X
City of San Rafael	X	X
City of Sausalito	X	X
Town of Corte Madera	X	X
Town of Fairfax	X	X
Town of Ross	X	X
Town of San Anselmo	X	X
Town of Tiburon	X	X
County Name	60 Day Notice	Notice of Public Hearing
Marin County	X	X
Other Agency Name	60 Day Notice	Notice of Public Hearing
North Marin Water District	X	X
Sonoma County Water Agency	X	X

10.2.2 Notice to the Public

Notification to the public and to cities and counties also provided instructions on how to view the UWMP and WSCP prior to the hearing, the revision schedule, and contact information of the UWMP and WSCP preparer. A copy of this notice is included in **Appendix D**.

10.3 Public Hearing and Adoption

☒ CWC §10608.26

(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

☒ CWC §10621 (b)

Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

The deadline for public comments on the UWMP and WSCP was 16 June 2026, the date of the public hearing. The final Plan was formally adopted by the District's Board of Directors on 16 June 2026, and was submitted to DWR within 30 days of approval. **Appendix J** presents a copy of the signed Resolution of Plan Adoption. **Appendix D** contains the following:

- Letters sent to and received from various agencies regarding this Plan, and
- Correspondence between the District and participating agencies.

10.4 Plan Submittal

☒ CWC §10621 (f)

(1) Each urban water supplier shall update and submit its 2025 plan to the department by July 1, 2026.

☒ CWC §10635 (c)

The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

☒ CWC §10644 (a)

(1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

This UWMP and WSCP were submitted to DWR within 30 days of adoption and by the July 1, 2026, deadline. The submittal was done electronically through Water Use Efficiency Data Portal, an online submittal tool. The adopted UWMP and WSCP were also sent to the California State Library and to the cities and counties listed in **Table 10-1** no later than 30 days after adoption.

10.5 Public Availability

☒ CWC §10645

(a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

On or about 16 June 2026, an electronic version of the draft UWMP and WSCP were made available for public review by visiting the District's website.

10.6 Amending an Adopted UWMP or Water Shortage Contingency Plan

☒ CWC §10644 (b)

If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared pursuant to subdivision (a) of Section 10632 no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

If the UWMP or WSCP are amended, each of the steps for notification, public hearing, adoption and submittal will also be followed for the amended document.

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Appendix A: Completed UWMP Checklist

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Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	1	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	n/a	Chapter 1 (pp. 1-1 to 1-3)
x	x	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.	Plan preparation	n/a	Executive Summary (pp. ES-1)
x	x	2.1	Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	Section 2.1 (p. 2-1)
x	n/a	2.5	Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Section 2.5 / Table 2-1 (p. 2-2)
x	x	2.5	Section 2.5	10644	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Section 2.5 / Table 2-2 (p. 2-2)
x	x	2.5	Section 2.5	10644	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	Section 2.5 / Table 2-3 (p. 2-3)
x	x	2.4	Section 2.4	10642	Provide supporting documentation that the 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	n/a	Section 2.4 / 2.5.2 (p. 2-4)
x	x	2.4	Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.4 / 2.5.2 (p. 2-4)
x	n/a	2.4	Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	Section 2.4.1 / Table 2-4 (p. 2-4)
x	x	3	Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	Chapter 3 / Section 3.1 (p. 3-1)
x	x	3.3	Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	Section 3.2 (p. 3-4)
x	x	3.4	Section 3.4.1	10631(a)	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	Section 3.3 / Table 3-2
x	x	3.4	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	Section 3.3.3 / Table 3-4
x	x	3.5	Section 3.5	10631(a)	Describe the land uses within the service area... include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.4
x	Optional	4.2	Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	Sections 4.2–4.3 / Tables 4-1 & 4-2 (pp. 4-2 to 4-4)
x	Optional	4.3	Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	Section 4.4 / Table 4-2 (p. 4-5)
x	n/a	4.3	Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Section 4.4 / Table 4-3 (p. 4-7)
x	n/a	4.2	Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	Section 4.5.4 / Table 4-7 (p. 4-6)
x	n/a	4.2	Section 4.2.5.3	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	4-3	Section 4.5.2 / Table 4-6 (pp. 4-2 to 4-4)
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Section 4.5.2 / Table 4-6 (p. 4-4)

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x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall... Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Section 4.5.2 / Table 4-6 (p. 4-4)
x	x	4.2	Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 4.5.5 / Table 4-8 (p. 4-7)
x	n/a	5.2	Section 5.2	10608.4	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	Chapter 5 / Table 5-1 (p. 5-11)
x	x	6.1	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	n/a	Section 6.1 / 6.9 (pp. 6-1, 6-19)
x	x	6.1	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, including changes in supply due to climate change.	System supplies	n/a	Sections 6.1 & 6.9 / Tables 6-9 & 6-11 (pp. 6-19 to 6-21)
x	x	6.2	Section 6.2.2	10631(b)(4)(C)	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water... (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	Section 6.2 / Table 6-1 (p. 6-5)
x	x	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 Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.2.2 (p. 6-4) – Groundwater Management
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Section 6.2.1 (p. 6-4) – Basin Description and Status
x	x	6.2	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	n/a	Section 6.2.1 (p. 6-4)
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins... (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin.	Water supplies and recycled water	n/a	Section 6.2.1 (p. 6-4)
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins... describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	Section 6.2.2 (p. 6-4)
x	x	6.2	Section 6.2.2.	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water... (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Section 6.2.3 / Table 6-1 (p. 6-5)
x	x	6.2	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	6-9	Section 6.2 / Table 6-1 (p. 6-5)
x	x	6.1	Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	Section 6.9 / Tables 6-9 & 6-11 (pp. 6-19 to 6-21)

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x	x	6.2	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	n/a	Section 6.7 (p. 6-16)
x	n/a	6.2	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)	6-2	Section 6.5.2 / Table 6-3 (pp. 6-7 to 6-10)
x	x	6.2	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)	6-3	Section 6.5.2 / Table 6-4 (pp. 6-10 to 6-11)
x	x	6.2	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	Section 6.5.3 / Table 6-5 (pp. 6-11 to 6-13)
x	x	6.2	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)	6-4	Section 6.5.3 / Table 6-5 (p. 6-13 to 6-14)
x	x	6.2	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 describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	Section 6.5.3 / Tables 6-5 & 6-6 (pp. 6-13 to 6-14)
x	x	6.2	Section 6.2.5	10633(f)	Describe the actions that 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)	6-6	Section 6.5.4 / Table 6-7 (pp. 6-14 to 6-15)
x	x	6.2	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)	n/a	Section 6.5.4 (p. 6-14 to 6-15)
x	x	6.2	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.6 (p. 6-15)
x	x	6.2	Section 6.2.10	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 five consecutive water years.	System supplies	6-7	Section 6.8 / Table 6-8 (pp. 6-16 to 6-18)
x	x	6.3	Section 6.3 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	O-1A, O-1B, O-1C, and O-2	Section 6.11 / Table 6-12b (p. 6-24 to 6-25)
x		7.1	Section 7.1	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	n/a	Section 7.1.2 (p. 7-4) – Water Quality
x	x	7.2	Section 7.2	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 Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	Section 7.2 / Tables 7-2 through 7-4 (pp. 7-5 to 7-10)
x	x	7.2	Section 7.2.3	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	n/a	Section 7.4 (p. 7-11)
x	x	7.3	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	Section 7.5 (p. 7-11)
x	x	7.3	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 five consecutive years.	Water supply reliability assessment	n/a	Section 7.5.1 (p. 7-12)
x	x	7.3	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	n/a	Section 7.5.2 (p. 7-12)
x	x	7.3	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	Section 7.5.3 / Table 7-10 (p. 7-12)
x	x	7.3	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	n/a	Section 7.5.1 (p. 7-12)
x	x	8	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Chapter 8 (p. 8-1) / Appendix G

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x	x	8	Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	Chapter 8 (p. 8-1)
x	x	8.2	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	n/a	Chapter 8 (p. 8-1) / Appendix G
x	x	8.2	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	n/a	Chapter 8 (p. 8-1) / Appendix G
x	x	8.3	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% 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	n/a	Chapter 8 (p. 8-1) / Appendix G
x	x	8.3	Section 8.3	10632(a)(3)(B)	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	Table 8-1 (p. 8-1) / Appendix G
x	x	8.4	Section 8.4	10632(a)(4)(A)	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate ~~supply augmentation actions.~~	Water shortage contingency planning	8-2	Table 8-3 (pp. 8-8 to 8-10) / Appendix G
x	x	8.4	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	Table 8-2 (pp. 8-1 to 8-8) / Appendix G
x	x	8.4	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Table 8-3 (pp. 8-8 to 8-10) / Appendix G
x	x	8.4	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	Table 8-3	Table 8-2 (pp. 8-1 to 8-8) / Appendix G
x	x	8.4	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	8-2 and 8-3	Tables 8-2 & 8-3 (pp. 8-1 to 8-10) / Appendix G
x	x	8.4	Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and ~~mitigation plan.~~	Water shortage contingency plan	n/a	Appendix G
x	x	8.5	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any ~~current or predicted water shortages.~~	Water shortage contingency planning	n/a	Appendix G
x	x	8.5	Section 8.5	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	n/a	Appendix G
x	n/a	8.6	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	n/a	Appendix G
x	x	8.7	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	Appendix G
x	x	8.7	Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code ~~Chapter 3. <i>Water Shortage Emergencies.</i>~~	Water shortage contingency planning	n/a	Appendix G
x	x	8.7	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	n/a	Appendix G
x	x	8.8	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	n/a	Appendix G
x	x	8.8	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	n/a	Appendix G
x	n/a	8.8	Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, <i>Excessive Residential Water Use During Drought.</i>	Water shortage contingency planning	n/a	Appendix G

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x	n/a	8.9	Section 8.9	10632(a)(9)	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	Appendix G
x	x	8.10	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	Appendix G
x	n/a	8.11	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	n/a	Appendix G
x	x	8.12	Section 8.12	10632(c)	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	Appendix G / Section 10.5 (p. 10-4)
x	n/a	9.1	Sections 9.1	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	n/a	Chapter 9 / Sections 9.3.1–9.3.7 (pp. 9-3 to 9-12)
x	n/a	10	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	n/a	Section 10.3 (p. 10-3) – Public Hearing and Adoption
x	x	10.2	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 Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Section 10.2.1 / Table 10-1 (p. 10-2)
x	x	10.4	Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 2026.	Plan adoption, submittal, and implementation	n/a	Section 10.4 (p. 10-3) – Plan Submittal
x	x	10.2	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	Sections 10.2.2, 10.3, 10.5 (pp. 10-3 to 10-4)
x	x	10.2	Section 10.2.2	10642	The 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	10-1	Section 10.2.2 / Table 10-1 (pp. 10-2 to 10-3)
x	x	10.3	Section 10.3.2	10642	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	Section 10.3 (p. 10-3)
x	x	10.4	Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Section 10.4 (p. 10-3)
x	x	10.4	Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.4 (p. 10-3)
x	x	10.4	Sections 10.4.1 and 10.4.2	10644(a)(2)	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	Section 10.4 (p. 10-3)
x	x	10.7	Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.6 (p. 10-4)
x	x	10.5	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.5 (p. 10-4)
x	x	10.5	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.5 (p. 10-4)
x	x	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	n/a	Section 10.6 (p. 10-4) – Not applicable to MMWD

Appendix B: 2025 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update

2025 WATER DEMAND ANALYSIS AND WATER CONSERVATION MEASURE UPDATE

Marin Municipal Water District

24 December 2025

EKI C40180.00

2025 WATER DEMAND ANALYSIS AND WATER CONSERVATION MEASURE UPDATE

24 December 2025

Prepared for:

Marin Municipal Water District

Prepared by:

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2025 Water Demand Analysis and Water Conservation Measure Update

Marin Municipal Water District

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APPENDICES

- Appendix A Methodology for Estimating Indoor and Outdoor Water Use
Appendix B Conservation Program Assumptions
Appendix C Prioritization and Screening of Future Water Conservation Measures

ABBREVIATIONS AND ACRONYMS

Ag	agricultural
AB	Assembly Bill
AFY	acre-feet per year
AMI	advanced metering infrastructure
AWE	Alliance for Water Efficiency
BMPs	Best Management Practices
CII	Commercial, Industrial, and Institutional
CWC	California Water Code
DIM	dedicated irrigation meter
District	Marin Municipal Water District
DMM	demand management measure
DWR	Department of Water Resources
GPCD	gallons per capita per day
HECW	high-efficiency clothes washer
HET	high-efficiency toilet
IRR	irrigation
LEF	landscape efficiency factors
MCCWL	Making Conservation a California Way of Life
MFR	multi-family residential
MUMs	mixed-use meters
Objective	Urban Water Use Objective
QWEL	Qualified Water Efficient Landscaper
Report	Water Demand and Conservation Report
SB	Senate Bill
SFR	single family residential
SMSWP	Sonoma-Marín Saving Water Partnership
State Water Board	State Water Resources Control Board
Sonoma Water	Sonoma County Water Agency
sq ft	square feet
TM	technical memorandum

UWMP	Urban Water Management Plan
Water Contractors	The nine members of the SMWSP participating in this project.
WBIC	weather-based irrigation controller

1 INTRODUCTION

To support the development of the 2025 Urban Water Management Plan (UWMP) updates, nine members of the Sonoma-Marin Saving Water Partnership (SMSWP) coordinated to conduct a joint update of their water demand projections and water conservation planning efforts (i.e., the *2025 Water Demand and Conservation Project*). The participating SMSWP members include the City of Cotati, City of Petaluma, City of Rohnert Park, City of Santa Rosa, City of Sonoma, Marin Municipal Water District, North Marin Water District, Town of Windsor, and Valley of the Moon Water District. These nine participating SMSWP members (referred to as Water Contractors herein) are shown on **Figure 1-1**.

The goals of the *2025 Water Demand and Conservation Project* are to apply a common methodology to conduct the following analysis for each Water Contractor:

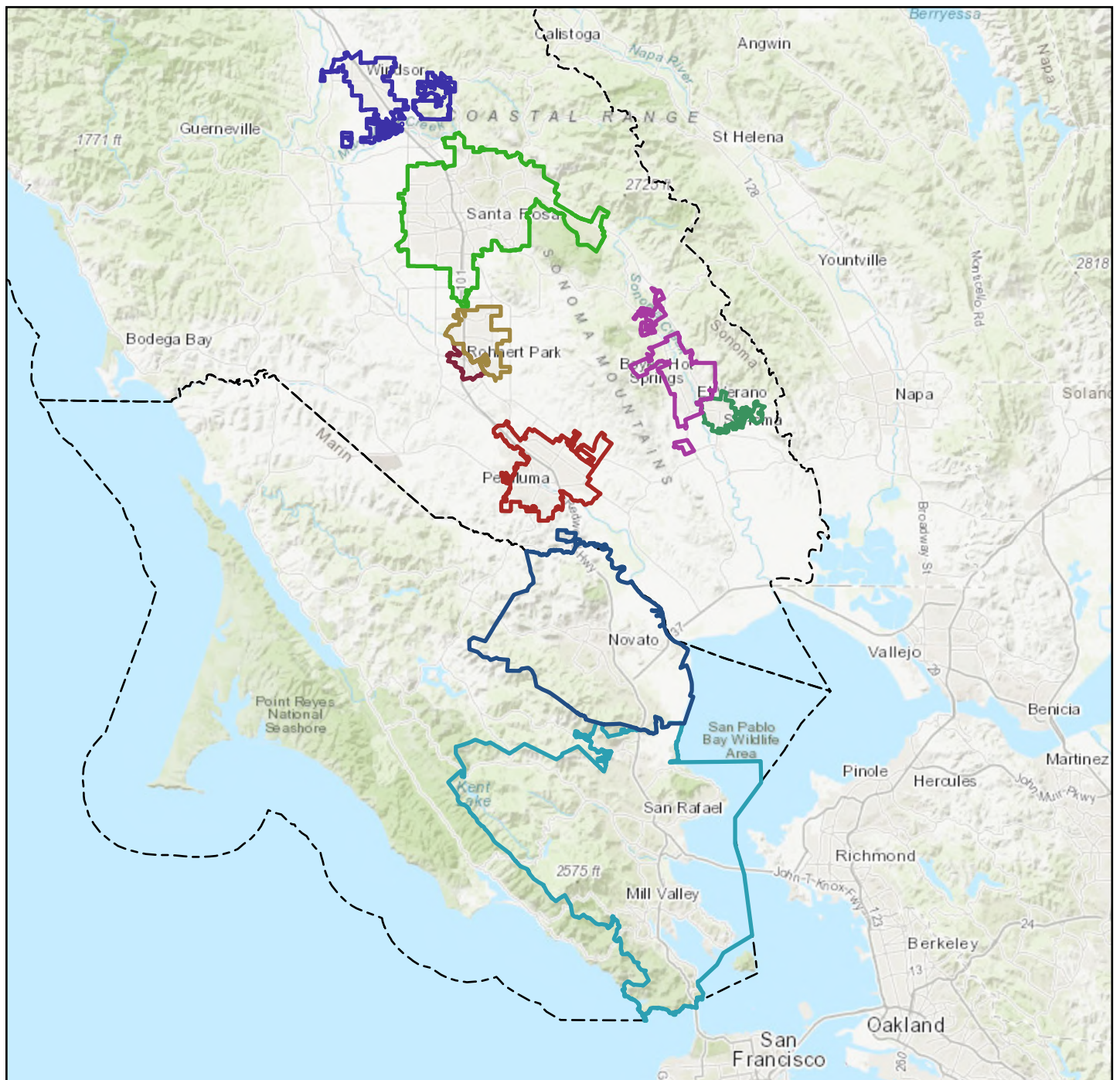
- Evaluate and document recent historical water use characteristics and trends, including population and account growth (in this report, the term “account” indicates “water connection”);
- Estimate projected water demands for the years 2030 through 2050 to support both the 2025 UWMP update and coordination and planning efforts with Sonoma Water;
- Update the suite of common regional conservation measures that are being considered for implementation in the future;
- Review and document past participation in water conservation programs; and
- Estimate the potential water savings associated with future water conservation program implementation.

This 2025 Water Demand and Conservation Measure Update presents the results for the Marin Municipal Water District (District) (**Figure 1-2**), located in Marin County, and serving a population of approximately 186,895 people in 2024. The District’s water supplies include surface water purchased from Sonoma County Water Agency (Sonoma Water), local surface water from its watershed, and recycled water produced from local wastewater at the Las Gallinas Valley Recycled Water Treatment Facility. Potable water is supplied to urban customers, and recycled water is provided to a variety of uses in the Terra Linda area of San Rafael including for irrigation, cooling towers, car washes and toilet flushing. Conservation has been achieved through the implementation of water conservation programs, including most administered by the District and some administered through the regional SMSWP.

This 2025 Water Demand and Conservation report is organized as follows:

- **Section 1** identifies the goals and objectives of the Report;
- **Section 2** provides the regulatory context for the demand projections as described in the Report as well as new requirements related to *Making Conservation a California Way of Life* (MCCWL; Assembly Bill [AB]-1668/ SB-606) that impact the water demand and conservation planning components of the 2025 UWMPs;
- **Section 3** describes historical water use patterns and characteristics within the District;

- **Section 4** documents past participation in conservation programs and estimated savings associated with program implementation, and presents the results of a detailed analysis of program participation trends for select conservation programs;
- **Section 5** describes the projected water demands through 2050, including the assumptions and methodology used;
- **Section 6** documents the water conservation measure screening process, identifies individual programs and program scenarios for potential future implementation by the District;
- **Section 7** documents the key findings and conclusions from the analyses presented throughout this report; and
- **Section 8** provides key references and sources.



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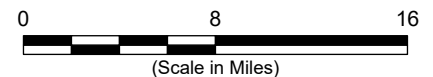
- City of Cotati Service Area
- City of Petaluma Service Area
- City of Rohnert Park Service Area
- City of Santa Rosa Service Area
- City of Sonoma Service Area
- Marin Municipal Water District Service Area
- North Marin Water District Service Area
- Town of Windsor Service Area
- Valley of the Moon Water District Service Area
- County Boundaries

Notes

1. All locations are approximate.

Sources

1. Service area boundaries provided by respective agencies.
2. Basemap provided by ESRI.

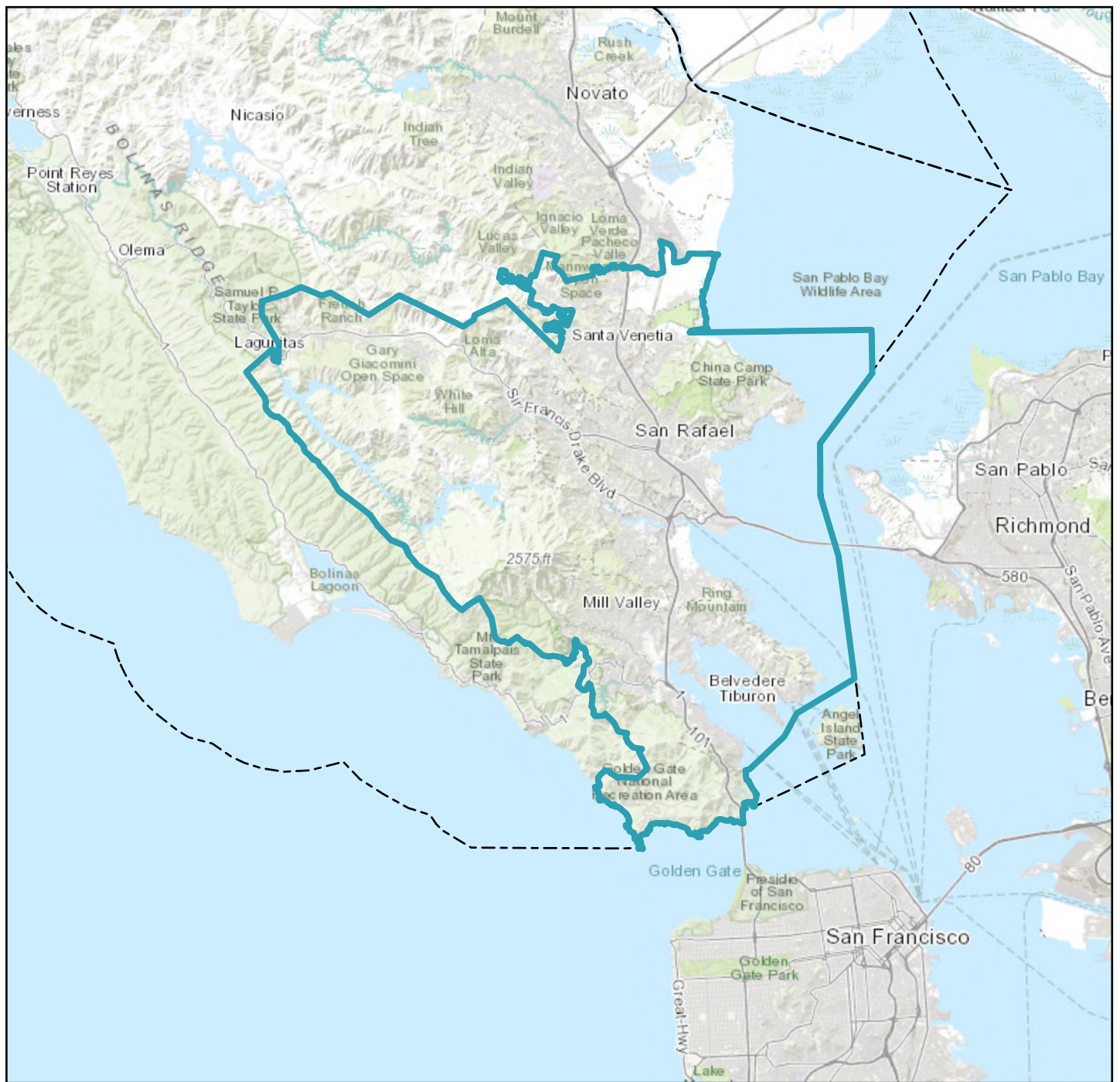


Participating Sonoma-Marin Saving Water Partnership Members



Sonoma Marin Saving Water Partnership
December 2025
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Figure 1-1



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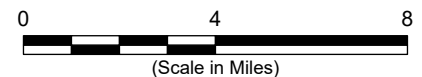
- Marin Municipal Water District Service Area
- County Boundaries

Sources

1. Service area boundary provided by Marin Municipal Water District.
2. Basemap provided by ESRI.

Notes

1. All locations are approximate.



Service Area Boundary – Marin Municipal Water District

2 REGULATORY CONTEXT

This section provides the regulatory background for the requirements to project future demand in the 2025 UWMP. Although there are no updates to the UWMP regulations since 2020, the MCCWL and other state regulations will impact the 2025 UWMPs, as they will inform the water demand projections and conservation planning components.

2.1 UWMP Demand Projections Requirements

California Water Code (CWC) § 10631, excerpted below, describes the requirements to develop water demand projections that consider water use by customer sector, incorporate distribution system water loss, and account for anticipated water savings. Water demand projections herein were developed for the District using a land-use-based approach that is consistent with these requirements, and can be incorporated into the District's 2025 UWMP.

CWC § 10631

A plan shall be adopted in accordance with this chapter that shall do all the following:

...

(d) (1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

...

(d)(4) (A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall note that fact.

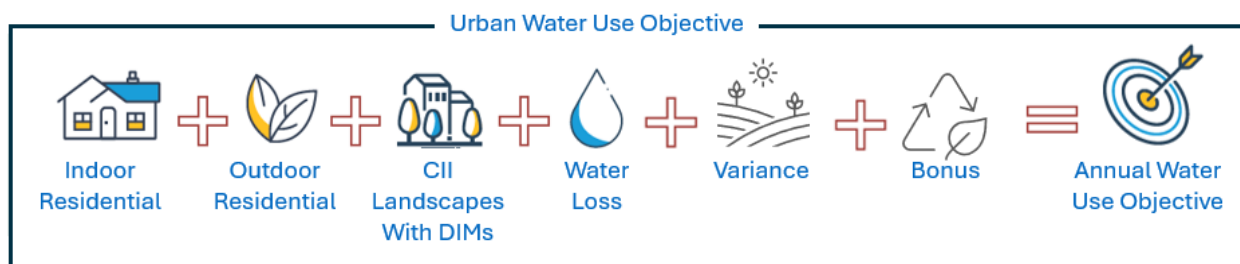
2.2 New Requirements for Water Use Efficiency

2.2.1 Making Conservation a California Way of Life

The State Water Resources Control Board (State Water Board) adopted a new Conservation Framework to implement Senate Bill 606 and Assembly Bill 1668 through the enactment of the MCCWL regulation in July 2024. The Conservation Framework requires each urban water supplier to calculate and comply with an annual Urban Water Use Objective (Objective) and to implement Commercial, Industrial, and Institutional (CII) Performance Measures, both of which must be reported on annually starting January 1, 2024 (although compliance with the Objective is not required until January 1, 2027).

As illustrated in **Figure 2-1** below, the Objective is calculated as the sum of the following components: (1) residential indoor water use standard, (2) residential outdoor water use standard, (3) CII landscape outdoor water use standard (for landscapes with dedicated irrigation meters [DIMs]), (4) water loss standard, (5) allowable variances, and (6) bonus provisions. Per the latest guidelines released by the Department of Water Resources (DWR) and the State Water Board, agencies will need to assess whether they meet their overall Objective (i.e., they are not required to comply with the individual water use standards as long as they meet the overall Objective).

Figure 2-1 Components of Urban Water Use Objective



The components of the Objective Water use include the following:

- Indoor and Outdoor Residential.** Indoor and outdoor residential include supplier-specific water use standards for indoor and outdoor single-family and multi-family residential use. The standard for efficient residential indoor water use is expressed in gallons per capita per day (GPCD) and is currently set at 47 GPCD, which took effect January 1, 2025. This standard will lower to 42 GPCD beginning January 1, 2030 (**Figure 2-2**). The residential indoor water use budget is calculated by multiplying a supplier's residential service area population by the residential indoor standard and by the number of days in the year. The standard for efficient residential outdoor water use is expressed as the landscape efficiency factor (LEF), a unitless number used to indicate the amount of water a supplier may need to deliver a healthy and efficient landscape in the service area, and represents plant factors and irrigation efficiency (**Figure 2-2**). The outdoor budget is then calculated

by multiplying the relevant outdoor LEF by landscape area, net evapotranspiration, and a unit conversion factor of 0.62;

- **CII Landscapes with Dedicated Irrigation Meters.** The budget for CII water use associated with dedicated irrigation meters (DIMs) is calculated by multiplying the outdoor LEF (**Figure 2-2**) for the CII special landscape area, by area of the large landscape, net evapotranspiration, and a unit conversion of 0.62. However, the CII landscapes with DIMs budgets will not become effective until June 30, 2028; until then, the budget is equal to actual water deliveries to CII DIMs. In the future, urban retail suppliers will have the option of installing DIMs at “large landscapes” that are over 0.5 acres and currently served by mixed-use meters (MUMs) (see discussion of CII Performance Measures below);
- **Water Loss.** Water loss represents “real water losses” or physical water losses from the pressurized potable water system (water mains and customer service connections) and the utility’s storage tanks, up to the point of customer consumption. These losses do not include apparent losses such as meter inaccuracies or theft. The water loss component is calculated based on the volumetric standards discussed in Section 2.2.2;
- **Variances.** Variances are an additional volume of water that an urban retail water supplier may request to add to its Objective for a unique use that has a substantial impact on a supplier’s Objective. Types of variances include the following: (1) emergency response; (2) recycled water with high levels of total dissolved solids; and (3) other variances, which encompasses water use related to seasonal populations, dust control for horse corrals and animal exercise areas, irrigation of residential agricultural landscapes, water use for sustaining wildlife in ponds and lakes when required by regulation, and irrigation of existing trees. Approved variances can be included in a supplier’s budget for up to five years and have documentation demonstrating that the variance does not conflict with permit requirements;
- **Bonus Incentives.** Bonus incentives apply to potable reuse projects to help suppliers meet the Objective through alternative water sources. The bonus incentive is calculated by multiplying the urban retail water supplier’s potable reuse volume, in gallons, depending on where the potable reuse water is obtained (i.e., groundwater basin, reservoir, direct potable reuse project) by the portion of total potable water production delivered to residential and landscape irrigation connections for the reporting year. Suppliers must report and update the bonus incentive calculation annually. Required documentation includes data on potable reuse volumes, loss factors for groundwater recharge and recovery, and verification from relevant regulatory authorities.

The progression of the residential indoor water use standard, residential outdoor LEF, and CII landscape with DIMs outdoor LEF are summarized on **Figure 2-2** below.

In addition, the Conservation Framework includes a number of requirements for CII Performance Measures, which include the following:

- **Implementing a classification system for CII water users.** Requires classification of CII accounts based on customer end use, and suppliers shall annually maintain at least a 95% classification rate of CII end users. CII accounts are to be classified based on customer end use, in accordance with the 18 Energy Star Portfolio Manager’s broad categories (e.g.,

banking services, education, office, retail, utility, etc.), including four additional CII categories of laundry, landscapes with DIMs, water recreation, and car washes.

- **Converting MUMs to DIMs for CII customers with large landscapes, or employing in-lieu technologies combined with rolling out Best Management Practices (BMPs).** Suppliers must install DIMs for CII customers with large landscapes (which include those over half an acre) or employ in-lieu technology (e.g., advanced metering infrastructure [AMI]) and offer BMPs to CII customers.
- **Providing BMP programs for CII customers.** Suppliers must identify CII water users that exceed a recommended size, volume of water use, or another threshold. Options include identifying the top water users, identifying the top water users within CII classification categories, or identifying inefficient CII water users with the use of key business activity indicators. For CII customers identified, suppliers must design and implement conservation plans from a list of approved BMP themes.

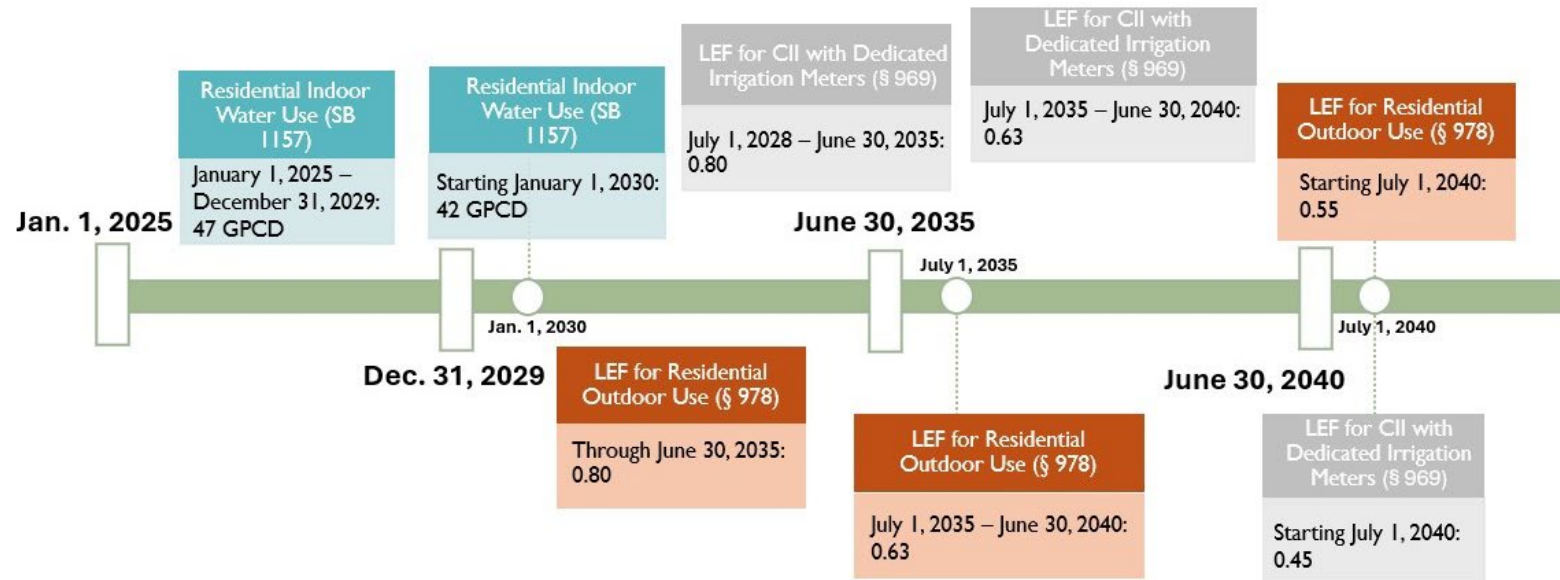
The implementation timeline of the MCCWL regulatory requirements is illustrated on **Figure 2-3**.

2.2.2 Related Regulations with MCCWL Compliance Implications

The following two regulations are separate from those embedded in the compliance requirements of MCCWL and are required to be reported on within annual Objective reporting:

- **Water Loss Control.** Urban water retailers are required to comply with State-assigned volumetric standards for real water loss. Suppliers must calculate system-specific water loss budgets by multiplying their State Board-assigned water loss standard by the number of days in the year and, depending on the units associated with the standard, by either the number of total service connections or the length of the distribution system. Suppliers with multiple systems must calculate an aggregate water loss budget by summing the estimated losses for each system.
- **Nonfunctional Turf Irrigation Ban (AB 1572).** The nonfunctional turf irrigation ban applies to turf (mowed grass maintained for aesthetic purposes) that does not provide recreational or community benefits, including CII properties, and common areas of homeowner associations. Water suppliers need to identify what landscapes fall under the ban and implement a plan to comply with the required schedule between 2027 and 2031, depending on the property type.

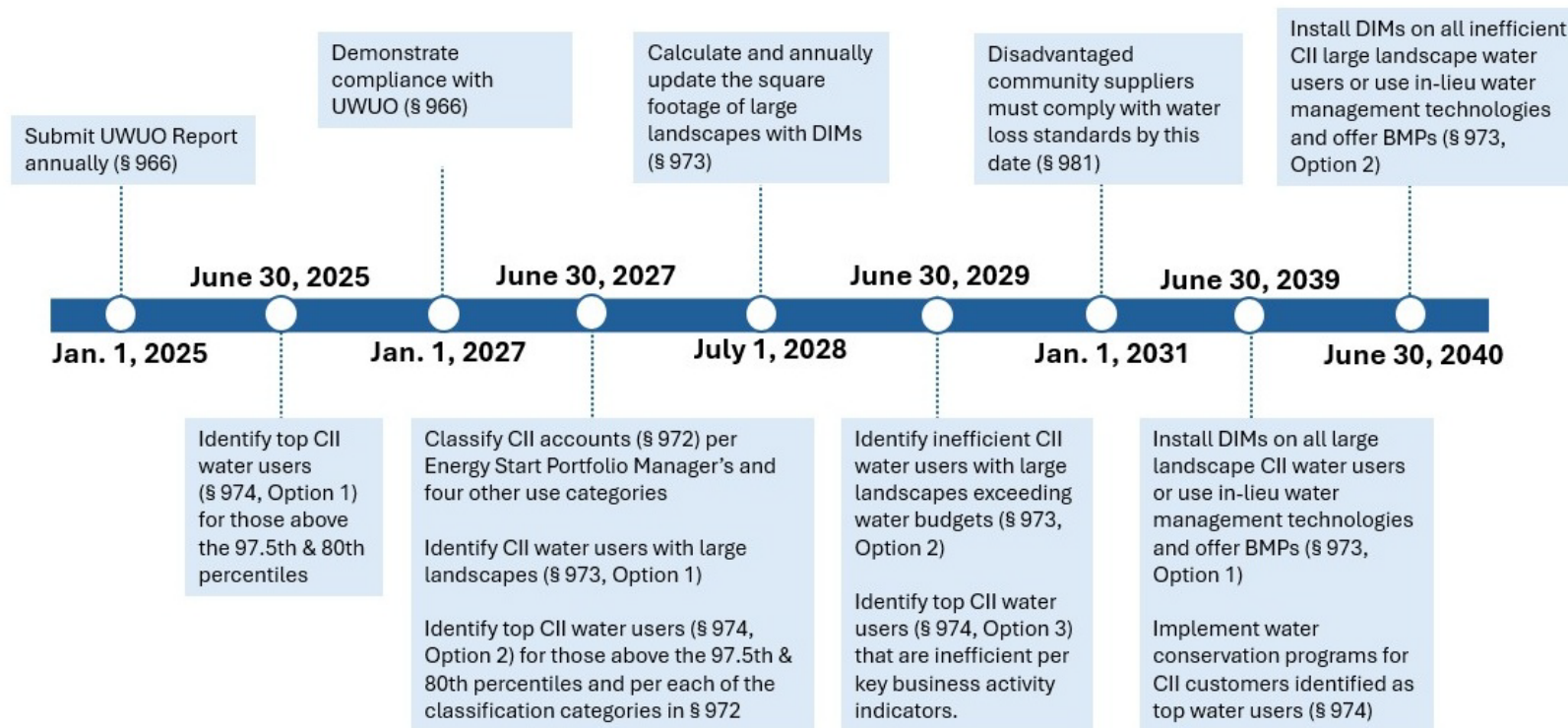
Figure 2-2 Progression of Objectives Indoor and Outdoor Efficiency Standards Through 2040



Abbreviations:

CII = commercial, industrial, and institutional
LEF = landscape efficiency factors
SB = Senate Bill

Figure 2-3 General Timeline of MCCWL Regulatory Requirements



Abbreviations:

BMPs = best management practices
CII = commercial, industrial, and institutional
DIMs = dedicated irrigation meters
UWUO = Urban Water Use Objective

3 WATER USE CHARACTERISTICS

This section describes historical water use by customers within the District including changes in observed water use, changes in average water use per account over time, and estimates of indoor and outdoor water use. This information is used to provide context and background to support the projection of future water demands and estimates of potential conservation program benefits. The terms “water use,” “water consumption,” and “water demand” are used interchangeably in this document.

3.1 Historical Total and Per Capita Water Use

Table 3-1 and **Figure 3-1** show the potable and recycled water use, total water use inclusive of potable, raw and recycled water, total per capita water use¹, and residential per capita water use for the past 15 years, 2010 through 2024.

As shown in **Table 3-1** and on **Figure 3-1**, total water use (including potable, raw and recycled water) was the highest in 2013 at 29,409 acre-feet per year (AFY) before declining significantly in response to the 2014-2017 drought and the State’s water use reduction mandates. Water use rebounded through 2020 at the beginning of the pandemic and then declined again coinciding with the 2021-23 historic drought. While there was a modest increase following the drought in 2024 to 22,784 AFY, total water use remains below historical levels observed in the 2010s.

Total per capita water use (including potable, raw and recycled water use) has declined over the period, from a high of 139 gallons per capita per day (GPCD) in 2013 to lows of 103 and 105 GPCD in 2021 and 2022, respectively. A similar trend was observed in residential per capita water use. These trends reflect the impact of water efficiency improvements, as well as demand hardening as structural and behavioral changes during droughts result in lasting water use reductions.

Historical water consumption per customer sector is provided in **Table 3-2** and shown by sector group on **Figure 3-2**². **Figure 3-3** shows the proportional water use by sector group. The single-family residential (SFR) sector comprises the largest proportion of the District’s total water consumption (57.1%). By comparison, the proportional water use consumption for the other sectors includes the multi-family residential (MFR) sector at 14.4%; the combined commercial, industrial, and institutional (CII) sector at 18.4%; dedicated irrigation accounts at 6%; with recycled comprised of 3.2% of total water consumption. Separately, non-revenue water was estimated to be 9.2% of the District’s total water demand (**Table 3-2**).

¹ Per capita water use for purposes of comparing water use to SB X7-7 water conservation targets may be different, due to the prescriptive method by DWR for determining an agencies compliance population and total water use. SB X7-7 compliance will need to be separately addressed by the District’s UWMP.

² Customer sectors are grouped into categories of SFR, MFR, CII total (mixed-use meters), irrigation (dedicated irrigation meters), and recycled water.

Table 3-1 Total and Per-Capita Water Use

Year	Potable Water Use (AFY) (a)	Raw Water Use (AFY) (a)	Recycled Water Use (AFY) (a) (b)	Total Water Use (AFY) (c)	Total Per Capita Water Use (GPCD) (d)	Residential Per Capita Water Use (R-GPCD) (e)
2010	25,469	258	514	26,241	128	82
2011	25,256	220	432	25,908	125	80
2012	26,592	301	507	27,400	131	86
2013	28,374	351	684	29,409	139	89
2014	24,523	323	579	25,425	119	79
2015	22,903	304	520	23,727	111	71
2016	22,709	301	491	23,501	109	71
2017	24,658	310	512	25,480	118	75
2018	25,168	309	522	25,999	121	78
2019	25,524	164	-	25,688	119	77
2020	27,281	180	-	27,461	127	86
2021	21,463	111	552	22,126	103	71
2022	21,276	184	697	22,157	105	69
2023	21,422	156	713	22,291	106	68
2024	21,872	174	738	22,784	109	71

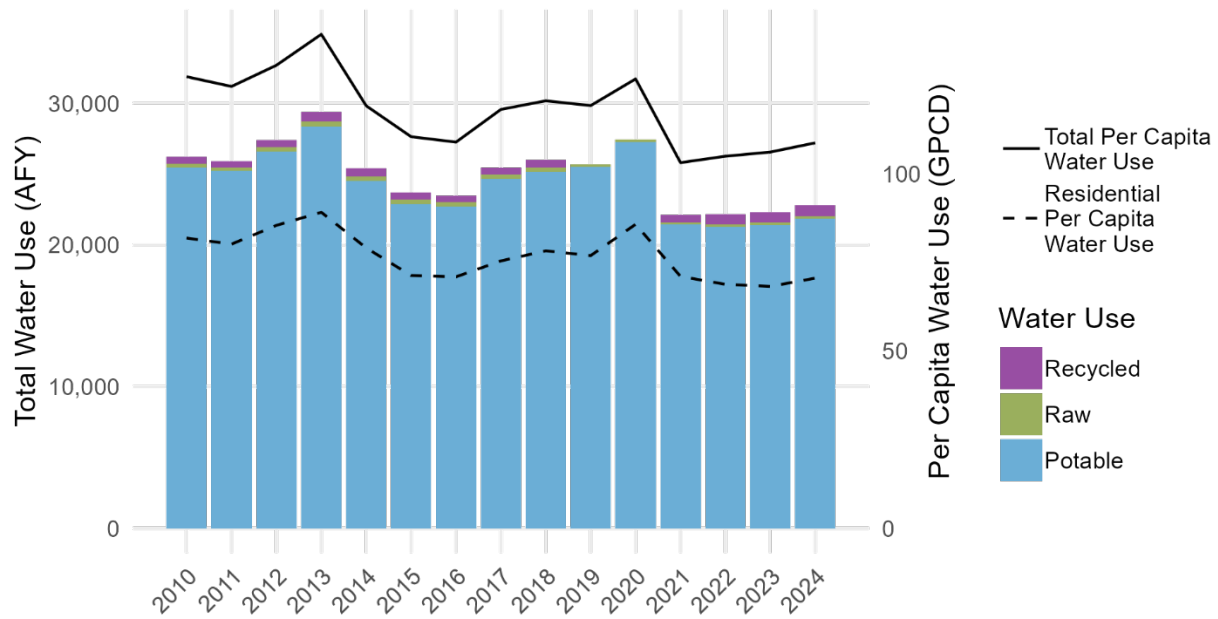
Abbreviations:

AFY = acre-feet per year
GPCD = gallons per capita per day
R-GPCD = residential gallons per capita per day

Notes:

- (a) Water use data are based on water production data provided by District staff.
- (b) The recycled water system is supplemented with potable water to meet demands, as necessary. This table reflects the recycled water deliveries to the recycled water system. In 2019 and 2020, all recycled water demands were met by potable water while the treatment plant was under construction.
- (c) Totals may not sum due to rounding.
- (d) Total per capita water use is calculated by dividing the Total Water Use by service area population (see Section 4) and the number of days in a year.
- (e) Residential per capita water use is calculated by dividing the annual residential water use by the service area population and the number of days in a year.

Figure 3-1 Total Water Production and Per-Capita Water Use



Abbreviations:

AFY = acre-feet per year

GPCD = gallons per capita per day

Table 3-2 Annual Water Use by Customer Sector

Water Use Sector	Water Use (AFY) (a)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Single Family	12,556	12,470	13,476	14,599	12,875	11,983	11,429	12,200	12,893	12,487	15,265	12,242	11,629	11,419	11,804
Multi-family	3,179	3,239	3,320	3,364	3,121	2,976	2,943	2,995	3,057	3,057	3,312	2,999	2,899	2,914	2,982
Commercial	2,712	2,640	2,776	2,861	2,646	2,570	2,579	2,620	2,665	2,626	2,261	2,118	2,212	2,224	2,315
Institutional	1,639	1,571	1,465	1,523	1,406	1,310	1,292	1,372	1,365	1,384	1,322	1,211	1,243	1,413	1,484
Single Family Irrigation	22	19	23	23	19	18	16	18	20	19	24	19	20	17	17
Irrigation	1,184	1,178	1,389	1,611	1,329	1,229	1,247	1,367	1,414	1,348	1,547	980	1,063	1,112	1,216
Other	39	32	43	44	35	34	28	32	38	50	62	41	27	20	28
Raw	258	220	301	351	323	304	301	310	309	164	180	111	184	156	174
Recycled (b)	607	588	653	753	647	605	577	645	656	661	747	611	648	596	662
Total Water Consumption (c)	23,303	22,892	24,554	25,955	23,259	21,369	21,328	22,612	23,322	22,805	24,721	20,330	19,926	19,871	20,681
Non-Revenue Water (d)	2,938	3,016	2,846	3,454	2,166	2,358	2,173	2,868	2,677	2,883	2,740	1,795	2,231	2,420	2,103
	11.2%	11.6%	10.4%	11.7%	8.5%	9.9%	9.2%	11.3%	10.3%	11.2%	10.0%	8.1%	10.1%	10.9%	9.2%
Total Water Demand (c)	26,241	25,908	27,400	29,409	25,425	23,727	23,501	25,480	25,999	25,688	27,461	22,126	22,157	22,291	22,784

Abbreviations:

AFY = acre-feet per year

Notes:

- (a) Water use data are provided by District staff.
- (b) The recycled water system is supplemented with potable water to meet demands, as necessary. This table reflects the total recycled and potable water consumed by the recycled water system.
- (c) Totals may not sum due to rounding.
- (d) Non-revenue water is calculated as the difference between total production and total consumption.

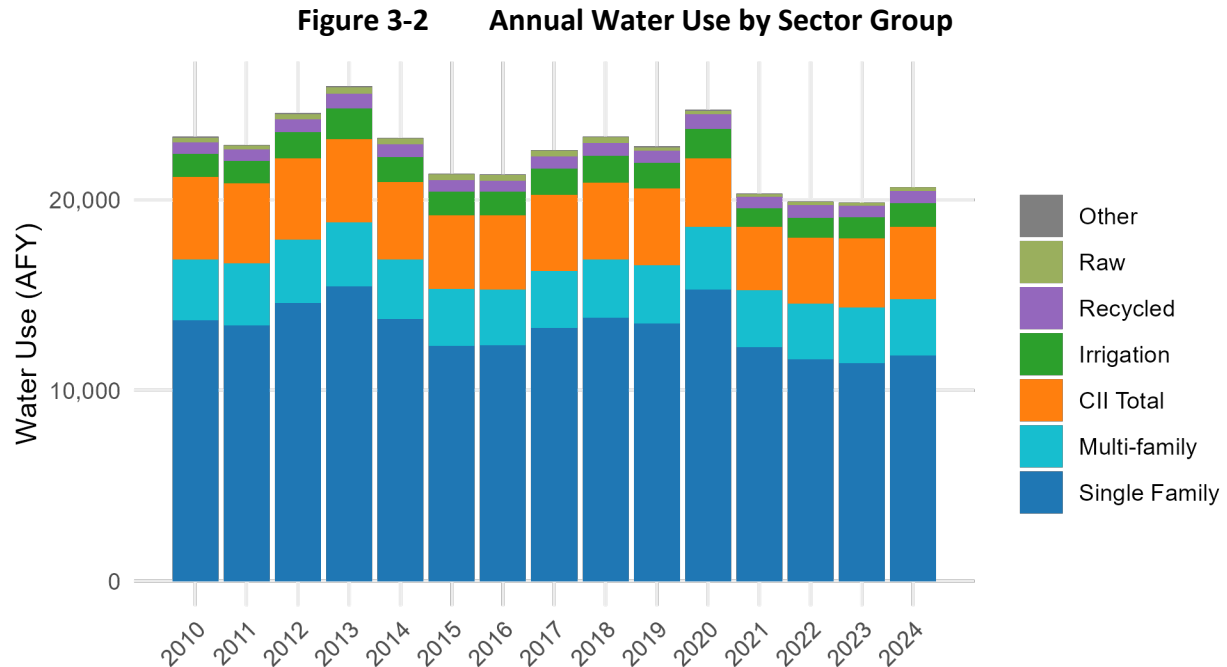
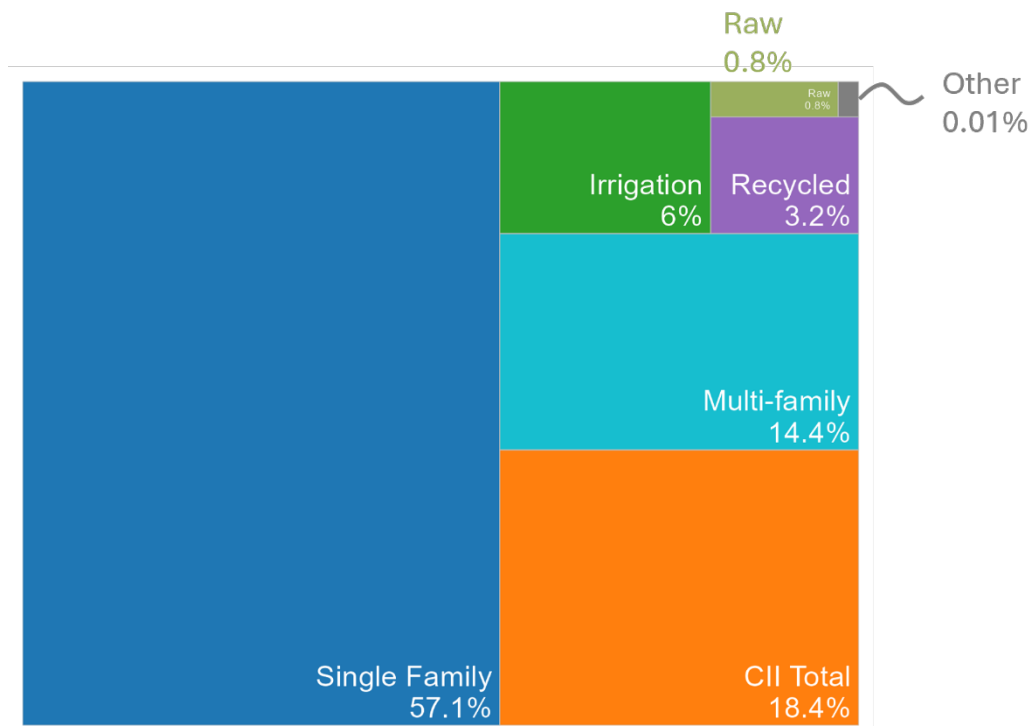


Figure 3-3 Proportional Water Use by Sector Group in 2024



Abbreviations:

AFY = acre-feet per year. CII = commercial, industrial, and institutional

Notes:

The CII Total sector group represents water use across all sectors with mixed-use meters. The irrigation sector group represents water use across all CII dedicated irrigation meters.

3.2 Water Use Trends by Customer Sector

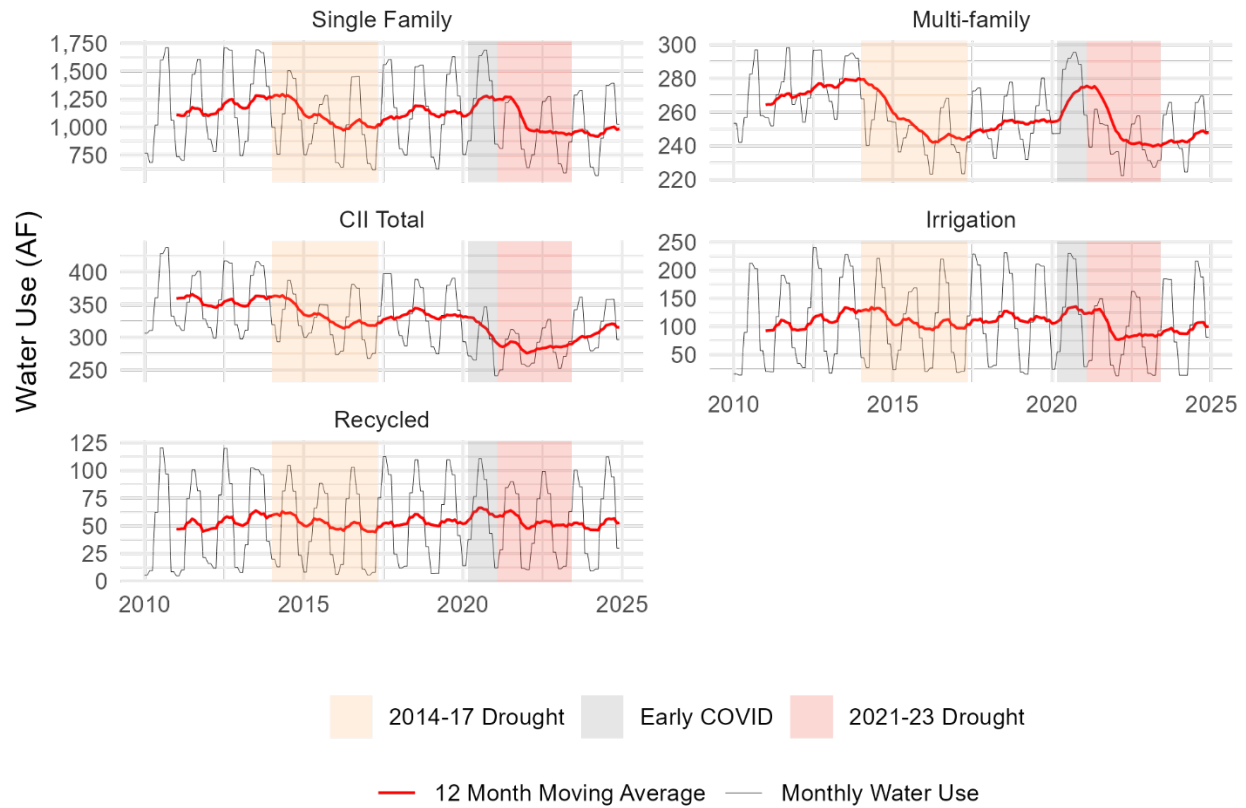
This section discusses long-term trends in both total water use and per-account water use across the SFR, MFR, CII, irrigation, and recycled water sector groups between 2010 and 2024. **Figure 3-4** shows monthly water use with 12-month moving averages. **Figure 3-5** summarizes the average annual water use per account. **Table 3-3** provides water use per customer sector. In total, these results provide insight into how each sector has responded to drought conditions, economic changes, and shifts in demographics.

- **SFR and MFR:** In both sectors, total water use has declined between 2010 and 2024, and there are notable reductions during drought periods and partial rebounds after the droughts. In addition, water use reductions during the drought periods are accompanied by diminished seasonality (**Figure 3-4**) that reflects likely reductions in outdoor irrigation in response to water use restrictions.

Average per-account water use was highest in 2013 in both sectors and rose again in 2020; likely due to stay-at-home measures during the beginning of the pandemic (**Figure 3-5**). Per account use has begun to rebound in 2023-2024 and current levels are below historical.

- **CII Total:** Both total and per-account use in the CII sectors declined significantly following the pandemic in 2020. These shifts may be tied to changes in business activity and employment in the District, with post-pandemic rebound observed 2023-2024. Current (2024) per account water use is slightly below 2017-2019 levels.
- **Irrigation:** The irrigation sector showed reductions during drought years with a steeper decline during 2020-2022. Per account use has begun to rebound in 2023-2024, however, current levels are below historical.
- **Recycled water:** Recycled water use has remained relatively steady in total volume over time, although average per account water use has declined. Per-account water use showed response to the historic droughts and current levels are below historical.

Figure 3-4 Monthly Water Use and 12-Month Moving Average



Abbreviations:

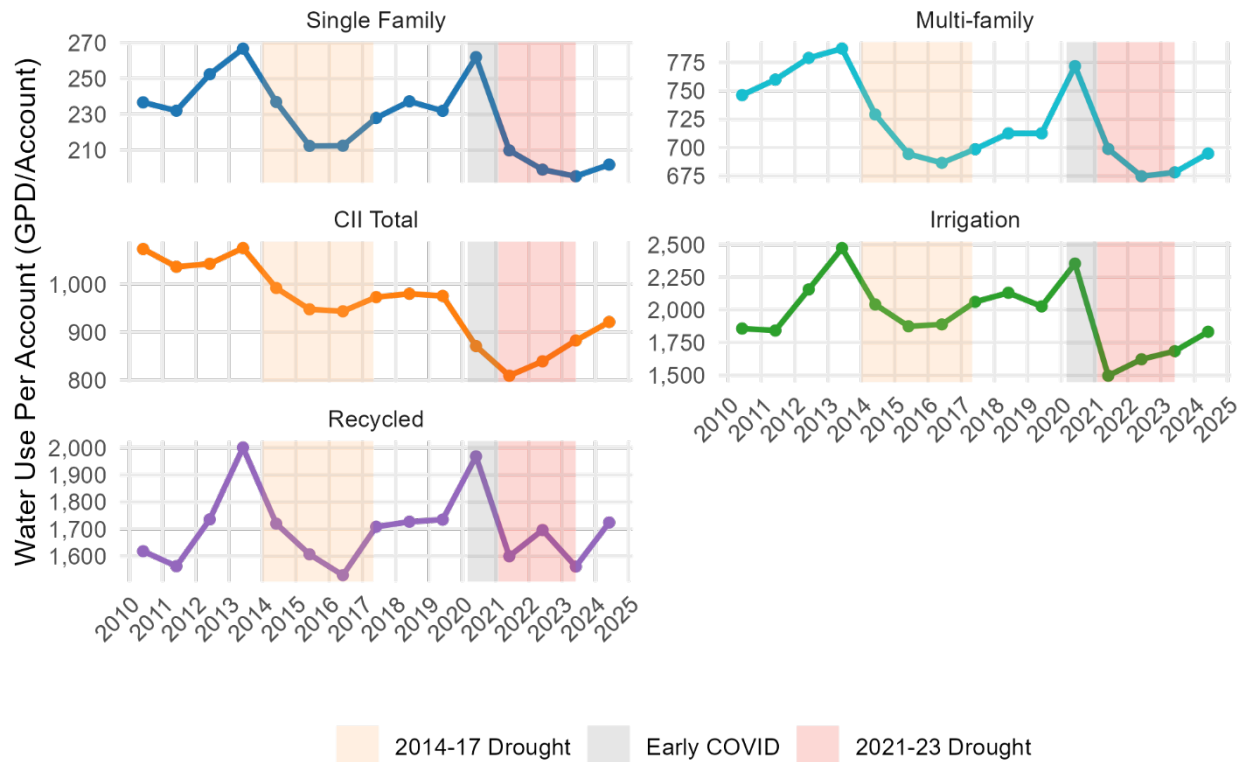
AF = acre-feet

CII = commercial, industrial, institutional

Table 3-3 Average Per Account Water Use by Customer Sector

Water Use Sector	Water Use per Account (GPD/Account)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Single-Family Residential	237	232	252	267	237	213	213	228	237	232	262	210	199	196	202
Multi-Family Residential (a)	746	760	779	787	729	694	686	699	712	712	772	699	675	678	695
CII (b)	1,073	1,036	1,042	1,075	992	948	943	973	980	975	871	809	839	883	921
Irrigation (c)	1,857	1,842	2,157	2,473	2,042	1,874	1,889	2,062	2,131	2,027	2,355	1,496	1,622	1,684	1,832
Recycled Water	1,618	1,563	1,736	2,001	1,720	1,606	1,529	1,708	1,727	1,735	1,968	1,599	1,696	1,561	1,724
Abbreviations: CII = commercial, industrial, and institutional GPD = gallons per day Notes: (a) The water use per account for multi-family residential customers measures water use at the master meter level, which can serve multiple units or the entire complex. This does not reflect water use per dwelling unit, as many properties are not individually submetered. (b) Based on the total water use and number of accounts across all CII sectors with mixed-use meters. (c) Based on the total water use and number of accounts across all sectors with dedicated irrigation accounts.															

Figure 3-5 Average Per Account Water Use by Sector Group



Abbreviations:

CII = commercial, industrial, and institutional
GPD = gallons per day

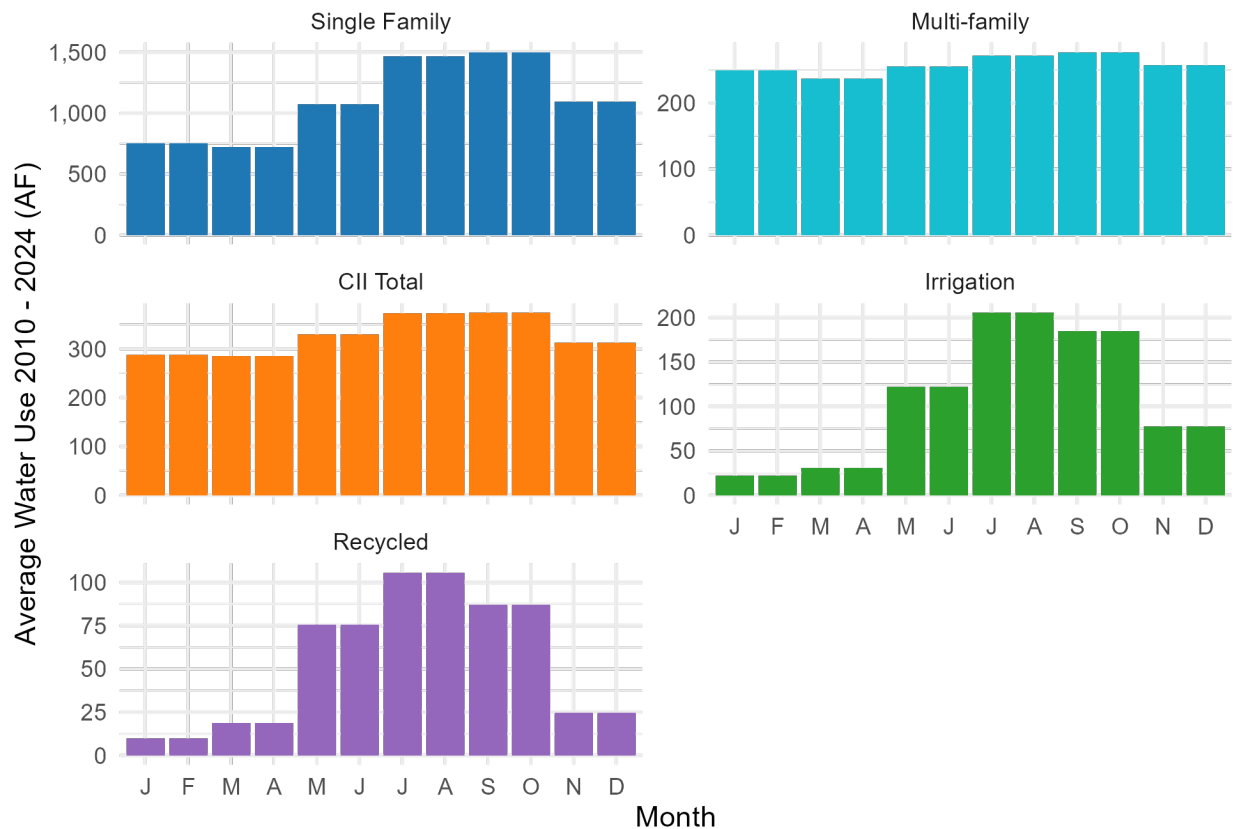
3.3 Estimated Indoor and Outdoor Water Use

Water use within the District varies seasonally (**Figure 3-6**), primarily driven by increased irrigation needs in the summer compared to the more limited irrigation water use during the wetter and cooler winter months. The most pronounced seasonal fluctuations occur in the irrigation and recycled water sectors, where water use is limited to outdoor irrigation and water use is minimal during the winter.

In contrast, SFR, MFR and the CII sector include water use from mixed-use meters and records both indoor and outdoor water use. In the SFR sector, summer water use is approximately double that of winter water use. The MFR and CII sectors show less seasonality, with summer water use about 17% and 31% higher than winter water use, respectively.

It is important to note that many MFR and CII customers have dedicated irrigation meters that are included in the irrigation sector, not within the MFR and CII mixed-use sectors. As a result, the outdoor water use estimated for MFR and CII sectors herein reflects only the portion of irrigation that remains on the domestic or mixed-use accounts. Some CII industries, such as restaurants, manufacturing, or facilities with cooling needs, may also experience seasonal variation in indoor water use, contributing to the modest increase in CII summer demands.

Figure 3-6 Average Monthly Water Use, 2010-2024



Abbreviations:

AF = acre-feet

CII = commercial, industrial, and institutional

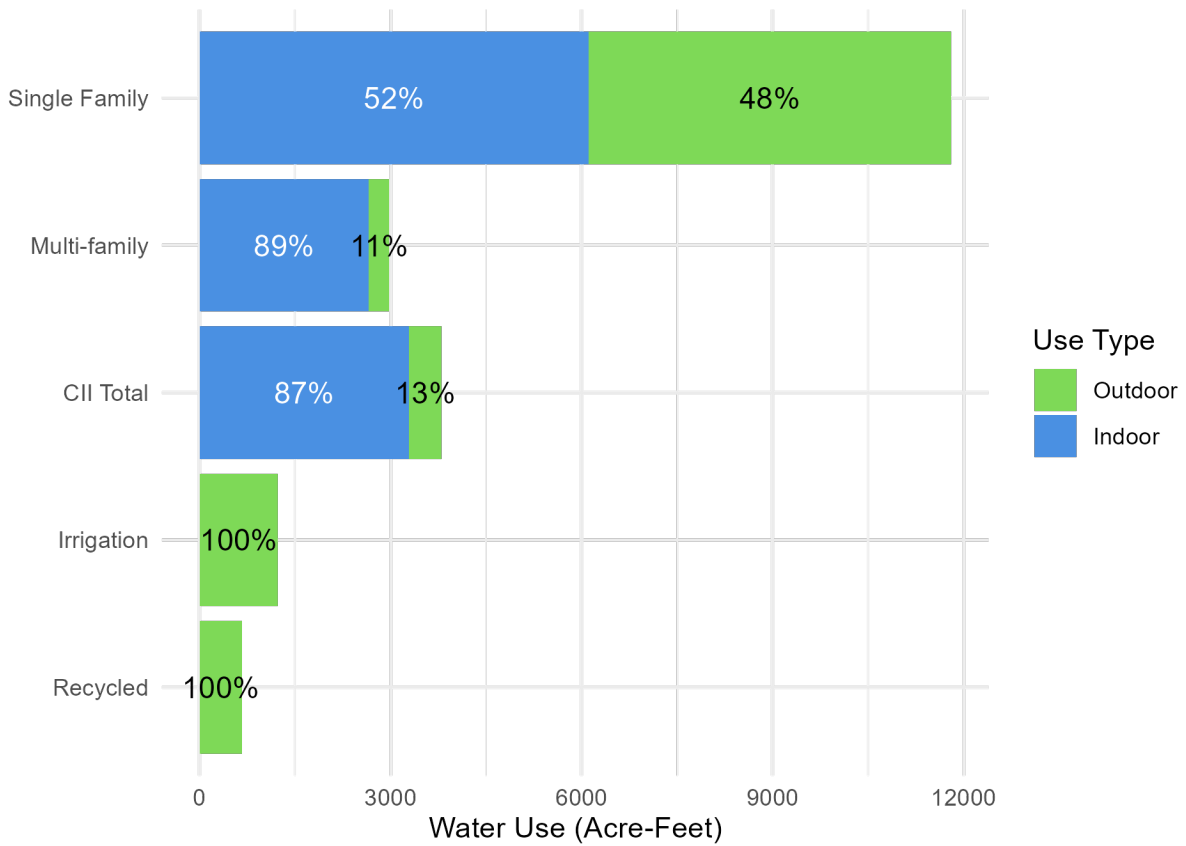
Note:

Monthly values are based on billing data collected on a 60-day billing period. As a result, billed consumption lags actual consumption. For example, December values shown above reflects October-November use.

A Seasonal Adjustment Method was used to estimate the relative proportions of water use that are used indoors versus outdoors in non-irrigation sectors. The methodology is further described in Appendix A. The results of this estimate are shown on **Figure 3-7**.

Aside from the dedicated irrigation and recycled water sectors (100% outdoor water use), SFR water use is estimated to have the highest proportion of outdoor water use at 48%. The MFR and CII sectors of mixed-use accounts have an estimated 11% and 13 % outdoor water use, respectively, corresponding to the lesser seasonality observed in these sectors. These values should be interpreted with the understanding that a substantial portion of MFR and CII landscape irrigation is already captured in the irrigation sector through dedicated irrigation meters. Given their landscape-only demands, MFR and CII dedicated irrigation accounts represent meaningful opportunities for outdoor conservation programs.

Figure 3-7 Estimated Indoor and Outdoor Water Use, 2024



Abbreviations:

CII = commercial, industrial, and institutional

4 CONSERVATION PROGRAM PARTICIPATION

This section evaluates past participation in water conservation programs by District customers, including presenting historic program participation and estimated water savings associated with program participation. The purpose of this section is to document program participation and savings in order to inform future program selection and implementation, and to support the demand management measure (DMM) reporting required in the UWMP under CWC § 10631(e).³

4.1 Conservation Programs

The description of water conservation programs, eligible customer classes, and program run dates provided by the District to their customers is summarized in **Table 4-1** below. The District currently implements 18 conservation programs offered directly to customers.

Table 4-1 Description of Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
AMI Leak Notification Program	Customers with AMI meters receive notifications of water use patterns indicative of leaks and are able to receive timely information and stop leaks much faster. Water Efficiency staff runs automated reports to monitor water use of AMI customers. AMI meters record water use in 15-minute intervals as compared to every other month as is typical for most residential meter reads.	All AMI enabled customers	2018-Current
Smart Home Monitors (Flume and Moen Flo Direct Distribution)	Residential customers can receive a \$136 discount on Smart Home Monitors which provide near real time water use monitoring and leak notifications	SFR	2020-current
SFR Water Use Surveys/Audits Program	A free service for SFR customers that involves a visit to their property to review water use and identify ways to save water indoors and outside.	SFR (Both)	1995 - Current
Water Use Surveys/Audits Program (Excluding SFR Participants)	Consultation activities include review, evaluation and report of indoor plumbing devices and/or a review and report of the landscape irrigation system.	MFR, CII, IRR (Outdoor)	1995 - Current

³ The information presented herein supports a portion of the required DMM analysis, focusing on device and education-focused programs. Additional details regarding customer billing rates and structure, conservation staffing levels, customer metering, etc. are required under CWC § 10631(e) but not addressed herein.

Table 4-1 Description of Conservation Programs (Continued)

Program	Description	Eligible Customer Class(es)	Program Run Dates
CII Water Use Evaluation Program	CII customers are provided with on-site water use evaluations, recommendations to improve efficiency, and pre-qualified for applicable rebates.	CII (Both)	1995 - Current
Water Waste Report Program	The general public can report water waste situations to MMWD online or over the phone. These contacts are logged into a database and followed up on by field staff to research and notify properties about water waste situations.	SFR, CII (Both)	1998, 2000 - Current
HET Rebate Program	The District rebates up to \$100 per HET and up to \$200 per Ultra High-Efficiency Toilet (UHET) when customers change their non-water conserving toilets (Pre 1993).	SFR (Indoor)	2007 - 2024
Residential HECW Rebate Program	Customers can apply for a rebate towards the cost of installing a qualifying residential high-efficiency clothes washer that meets current water and energy efficiency requirements.	SFR (Indoor)	1998-2010 2013 -2024
Hot Water Recirculating System	Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a hot water recirculating system to create a looped system to recirculate cold water back to the water heater.	SFR (Indoor)	2014 - Current
Pool Cover Rebate Program	Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a pool cover.	SFR (Outdoor)	2014 - Current

Table 4-1 Description of Conservation Programs (Continued)

Program	Description	Eligible Customer Class(es)	Program Run Dates
Laundry-to-Landscape System	2015: Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a 3-way diverter valve and/or air vent. Products must be installed as part of a residential laundry to landscape system that uses discharge water from a single domestic clothes washer in a one- or two-family dwelling. 2020: Single family or duplex residential customers can receive a \$125 value kit including a 3-way diverter valve and other supplies needed for installation of a residential laundry to landscape system that uses discharge water from a single domestic clothes washer in a one- or two-family dwelling.	SFR (Outdoor)	2015-2017 2020 - Current
Rain Barrel Rebate Program	2014-2019: Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of a rain barrel to collect rainwater that can be used to supplement landscape irrigation. 2020: Residential and commercial customers with active potable water service can apply for a rebate up to \$0.50 per gallon of storage when they install rain barrels and/or cisterns at their sites. Total rebates for rain barrels and cisterns may not exceed \$1,000 per site. 2024: Residential and commercial customers with active potable water service can apply for a rebate up to \$0.75 per gallon of storage when they install rain barrels and/or cisterns at their sites. Total rebates for rain barrels and cisterns may not exceed \$1,000 per site.	SFR (Outdoor)	2014 - Current

Table 4-1 Description of Conservation Programs (Continued)

Program	Description	Eligible Customer Class(es)	Program Run Dates
WBIC Rebate Program	All customers can apply for a rebate of up to \$100 per irrigation controller when they purchase and install a weather-based irrigation controller to replace an existing standard controller.	All (Outdoor)	2013-2015 2020 - Current
SFR Turf Removal Program	2015-2016: MMWD customers participated in the state Save Our Water turf replacement program, which offered \$2/sq ft of turf removed. 2020-2021: MMWD customers eligible for \$3/sq ft for ceasing irrigation and not replanting until water shortage emergency was withdrawn. Alternatively, customers could participate in the Mulch Madness (drought sheet mulching) program. 2022-Current: Tiered rebate that includes a best practice (higher rebate of \$4.68/sq ft) for planting mostly native plant species, an alternative water source to the project and sheet mulching to the site. The Standard Rebate is available for turf conversion where best practices are not implemented for \$2.18/sq ft.	SFR (Outdoor)	2015-2016 2020 - Current
Organic Mulch Rebate Program	Single family or duplex residential customers can apply for a rebate up to \$50 towards the cost of organic mulch.	SFR (Outdoor)	2014-2022
Landscape Plan Review Program	Water conservation requirements for landscape professionals and homeowners when designing and installing landscapes and irrigation systems. Plan review requirements apply to all new construction and rehabilitated (renovations or changes made to sites with an existing irrigation system) landscape projects requiring a building permit, plan check, or design review.	SFR, CII (Outdoor)	1986 - Current

Table 4-1 Description of Conservation Programs (Continued)

Program	Description	Eligible Customer Class(es)	Program Run Dates
Tier 4 Exemption Program	An incentive program designed to help save water and lower customer's water bill. To qualify, customers must meet the District's current water conservation standards and pass a verification site visit. The customer's property then becomes exempt from Tier Four water rates for a four-year period. This means their water will be billed at no higher than Tier Three rates.	SFR (Both)	2004-Current
Water-wise Community Garden Program ("Garden Grant")	Up to \$5,000 is available for the installation of water-wise gardens in public spaces to provide local inspiration of turf conversion sites.	MFR, CII, IRR (Outdoor)	2020 - Current
Custom Rebate	Rebate for installing any equipment or technology that the District does not already have a rebate for that results in a sustained water reduction (materials only, not labor).	CII, MFR, IRR (Both)	2025 - Current
Abbreviations: Ag = Agriculture AMI = Advanced Metering Infrastructure CII = commercial, industrial, institutional HECW = High Efficiency Clothes Washer IRR = Irrigation MFR = Multifamily Residential MMWD = Marin Municipal Water District SFR = Single Family Residential sq ft = square feet WBIC = Weather-Based Irrigation Controller			

In addition to programs offered by the District, several regional programs are offered through the SMSWP, including: (2) public outreach (3) Qualified Water Efficient Landscaper (QWEL) Training, and (4) garden tours. The full Report will additionally present participation in these SMWSP programs after school year 2024-25 data are available.

4.2 Historical Conservation Program Participation

Table 4-2 summarizes participation in the District's conservation programs from 1986 through 2024. Darker shading indicates higher participation values. The table shows the total number of participants in each program, the number of participants within the life of each program, and the percentage of such participants compared to the total number of accounts of the predominant sector. This percentage serves as a measurement of program saturation, (i.e., how extensively the program has been adopted within the target customer base) and whether there remains

future potential from the program. The lifetime of each program represents the estimated period before a customer either re-enters the pool of potential participants for audit programs or requires a new replacement of fixtures.

Figure 4-1 further illustrates the data included in **Table 4-2**, showing the participation by end use, sector group, or program categories, and turf replacement square footage over time.

Among the programs offered by the District, the programs that reached the largest number of customers and their respective sector participation rates included:

- HET Rebate Program, 9.4% in the SFR sector⁴;
- Residential HECW Rebate, 5.7% in the SFR sector;
- Flume Smart Home Monitors, 6.6% in the SFR sector; and
- SFR Water Use Surveys/Audits Program, 4.5% in the SFR sector.

As shown on **Figure 4-1**, graph A, participation in outdoor programs has remained stable over time, whereas participation in indoor programs has started strong but decreased over time. Participation in programs that target all end uses began trending upward in recent years. Participation from the residential sector (graph B) has slightly declined over time, while recent increases are observed with new programs that target multiple sectors. Through the SFR Turf Removal Program, over 600,000 square feet of turf have been removed. Per graph C, peak activity was observed during the 2021 and 2022 water shortage emergency.

Looking at all programs per program category (graph D), most programs have a low adoption rate over the recent five years, however, participation in Audits & Reports programs saw a substantial increase in 2021 due to the higher number of water waste reports during the 2021-2023 drought.

4.3 Estimated Savings from Past Conservation Programs

The Alliance for Water Efficiency (AWE) model⁵ was used to estimate water savings associated with the implementation of all device or turf replacement and audit programs identified in **Table 4-2** for the period of 2010 to 2024. Water savings estimates were based on AWE model default values and other literature values as needed. The specific assumptions used in this assessment are presented in Appendix B. The results of this analysis are presented in **Table 4-3** and illustrated on **Figure 4-2**. It is estimated that conservation programs included in this assessment resulted in active savings of 4,855 AF between 2010 and 2024.

As shown on **Figure 4-2**, the most successful program types in terms of estimate savings include the following, listed in order of savings:

- Leaks & Water Losses (AMI Leaks Notification);
- Audits & Reports (Water Use Surveys/Audits Programs);

⁴ The ULFT Rebate Program reached a larger number of customers but is not highlighted here given that there is currently a more stringent plumbing code requirement.

⁵ Alliance for Water Efficiency, Water Conservation Tracking Tool Version 4.3.

- Clothes Washers (Residential HECW Rebate Program),
- Irrigation Systems & Devices (Irrigation Improvement Equipment and WBIC Rebate Programs);
- HET (rebate, retrofit, and direct install programs); and
- Turf Replacement (SFR Turf Removal Program).

In addition, over this period, it is estimated that 2,339 AF was saved through passive savings.⁶ Thus, total active and passive savings are estimated to be 7,194 AF.

⁶ Passive water savings are water savings associated with the natural replacement of water using fixtures and devices with higher efficiency ones, due to plumbing code and market changes. Passive savings are estimated for the whole service area.

Table 4-2 Summary of Conservation Program Participation
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Program Name	End Use		Program Category	Number of Program Participants (b)																													
	Sector (a)	Indoor/ Outdoor		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AMI Leak Notifications Program	All	Indoor	Leaks and Water Losses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flume Direct Distribution	SFR	Both	Audits & Reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SFR Water Use Surveys/Audits Program	SFR	Both	Audits & Reports	-	-	-	-	-	-	-	-	-	127	234	380	246	281	470	634	465	319	46	329	83	264	755	892	699	1,102	862	849	1,033	838
Water Use Surveys/Audits Program	MFR, CII, IRR	Outdoor	Audits & Reports	-	-	-	-	-	-	-	-	-	49	10	37	26	9	1	6	2	4	2	3	228	362	558	317	463	311	504	504	364	415
CII Water Use Evaluation Program	CII	Both	Audits & Reports	-	-	-	-	-	-	-	-	-	25	42	23	40	56	47	17	4	20	42	16	15	33	53	140	65	89	66	47	41	32
Water Waste Report Program	SFR, CII	Both	Audits & Reports	-	-	-	-	-	-	-	-	-	-	-	-	6	0	46	16	127	99	41	18	33	80	52	42	33	67	52	68	584	541
HET Rebate Program	SFR	Indoor	Toilets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	612	839	1,624	51	-	-	214	1,169	1,226
HET Direct Install Program	MFR, CII	Indoor	Toilets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	124	68
Time of Sale (Toilet Retrofit) Program	SFR	Indoor	Toilets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	419	630	391	53	-	-	-	-	-	-	-	-	-
ULFT Rebate Program	SFR	Indoor	Toilets	-	-	-	-	-	-	-	4	3,552	3,425	3,877	5,112	2,779	2,629	2,078	942	2,580	15	56	174	45	1	-	-	-	-	-	-	-	-
Residential HECW Rebate Program	SFR	Indoor	Clothes Washers	-	-	-	-	-	-	-	-	-	-	-	-	720	967	826	942	1,472	1,366	1,344	1,248	1,688	1,537	1,620	1,654	252	-	-	133	675	615
Hot Water Recirculating System	SFR	Indoor	Cooling & Heating Systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	141
Pool Cover Rebate Program	SFR	Outdoor	Pools & Fountains	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	142
Laundry-to-Landscape System	SFR	Outdoor	Greywater	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Rain Barrel Rebate Program	SFR	Outdoor	Rainwater Harvesting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	100
SFR WBIC Rebate Program	SFR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	66	42
Large Landscape WBIC Rebate Program	IRR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	6
Organic Mulch Rebate Program	SFR	Outdoor	Turf Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	782
Irrigation Improvement Equipment Program	IRR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
Landscape Plan Review Program	SFR, CII	Outdoor	Other	3	6	29	24	28	39	30	21	32	31	36	38	66	29	27	47	46	40	56	50	74	50	42	45	30	50	76	89	72	88
Tier 4 Exemption Program	SFR	Both	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	6	7	4	3	3	0	1	2	0	2	2
Water-wise Community Garden Program	MFR, CII, IRR	Outdoor	Audits & Reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Turf Removed (square feet)																																	
SFR Turf Removal Program	SFR	Outdoor	Turf Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10,364
WBIC Stations Rebated																																	
SFR WBIC Rebate Program	SFR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	719	394
Large Landscape WBIC Rebate Program	IRR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	191	123

Table 4-2 Summary of Conservation Program Participation
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Program Name	End Use		Program Category	Number of Program Participants (b)									Life of Program (c)	Pct. of Accounts Within Life of Program (c)
	Sector (a)	Indoor/ Outdoor		2016	2017	2018	2019	2020	2021	2022	2023	2024		
AMI Leak Notifications Program	All	Indoor	Leaks and Water Losses	-	-	690	1,187	1,539	1,329	1,211	1,300	1,286	1	(d)
Flume Direct Distribution	SFR	Both	Audits & Reports	-	-	-	-	-	2,018	461	384	603	-	6.6%
SFR Water Use Surveys/Audits Program	SFR	Both	Audits & Reports	498	712	466	253	116	746	442	399	666	5	4.5%
Water Use Surveys/Audits Program	MFR, CII, IRR	Outdoor	Audits & Reports	128	125	71	22	7	8	3	6	7	5	0.3%
CII Water Use Evaluation Program	CII	Both	Audits & Reports	35	35	11	4	1	12	4	3	2	5	0.5%
Water Waste Report Program	SFR, CII	Both	Audits & Reports	190	142	162	151	98	4,932	638	226	221	5	10.7%
HET Rebate Program	SFR	Indoor	Toilets	772	591	427	308	69	30	69	21	15	15	9.4%
HET Direct Install Program	MFR, CII	Indoor	Toilets	-	-	-	-	-	-	-	-	-	15	2.9%
Time of Sale (Toilet Retrofit) Program	SFR	Indoor	Toilets	-	-	-	-	-	-	-	-	-	15	0%
ULFT Rebate Program	SFR	Indoor	Toilets	-	-	-	-	-	-	-	-	-	15	0%
Residential HECW Rebate Program	SFR	Indoor	Clothes Washers	439	187	57	65	66	261	105	112	49	15	5.7%
Hot Water Recirculating System	SFR	Indoor	Cooling & Heating Systems	31	26	13	15	3	102	66	17	8	10	0.8%
Pool Cover Rebate Program	SFR	Outdoor	Pools & Fountains	43	10	13	14	1	371	68	29	35	5	1.0%
Laundry-to-Landscape System	SFR	Outdoor	Greywater	1	5	-	-	1	45	10	3	0	10	0.1%
Rain Barrel Rebate Program	SFR	Outdoor	Rainwater Harvesting	20	11	6	6	9	48	49	12	13	5	0.2%
SFR WBIC Rebate Program	SFR	Outdoor	Irrigation Systems & Devices	-	-	-	-	48	412	133	192	241	10	2.0%
Large Landscape WBIC Rebate Program	IRR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	10	0.4%
Organic Mulch Rebate Program	SFR	Outdoor	Turf Replacement	203	107	98	80	6	-	-	-	-	23	2.6%
Irrigation Improvement Equipment Program	IRR	Outdoor	Irrigation Systems & Devices	12	22	-	-	-	-	-	-	-	10	4.4%
Landscape Plan Review Program	SFR, CII	Outdoor	Other	91	104	114	120	94	88	92	110	97	23	3.0%
Tier 4 Exemption Program	SFR	Both	Other	-	-	-	-	1	-	-	-	-	-	0.1%
Water-wise Community Garden Program	MFR, CII, IRR	Outdoor	Audits & Reports	-	22	-	-	-	-	-	-	-	5	0.0%
				Total Turf Removed (square feet)										
SFR Turf Removal Program	SFR	Outdoor	Turf Replacement	45,348	-	-	-	2,800	225,607	184,625	69,004	67,472	-	-
				WBIC Stations Rebated										
SFR WBIC Rebate Program	SFR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-
Large Landscape WBIC Rebate Program	IRR	Outdoor	Irrigation Systems & Devices	-	-	-	-	-	-	-	-	-	-	-

Table 4-2 Summary of Conservation Program Participation

Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Abbreviations

CII = Commercial, Industrial, Institutional

HET = High Efficiency Toilet

MFR = Multi-Family Residential

ULFT = Ultra Low Flush Toilet

HECW = High Efficiency Clothes Washer

IRR = Irrigation

SFR = Single-family residential

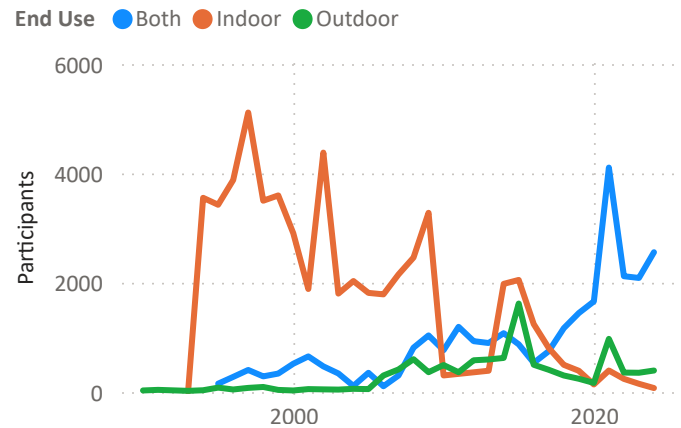
WBIC = Weather Based Irrigation Controller

Notes

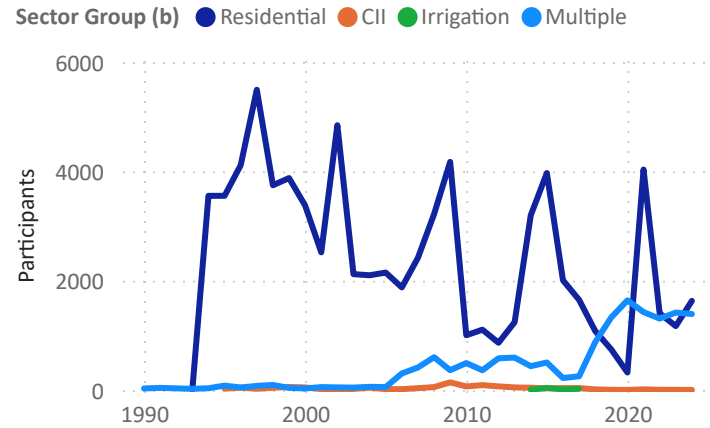
- (a) Predominant sector for program participants.
- (b) Colored shading is added for visualization purposes. Green shading represents higher participation values.
- (c) As an estimate of program saturation, participation is calculated over the lifetime of each program as a percentage of the total accounts within the predominant sector served. Program lifetimes are consistent with the assumptions used to estimate savings, as shown in Appendix B, for programs that are not tied to fixtures already covered by existing plumbing codes.
- (d) Participation data for the AMI Leak Notifications Program reflects the number of leak notices sent within a given year. The District installed AMI meters on approximately 10% of its connections as of 2025 and anticipates to be fully installed by 2028.

Figure 4-1
Conservation Program Participation
 Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

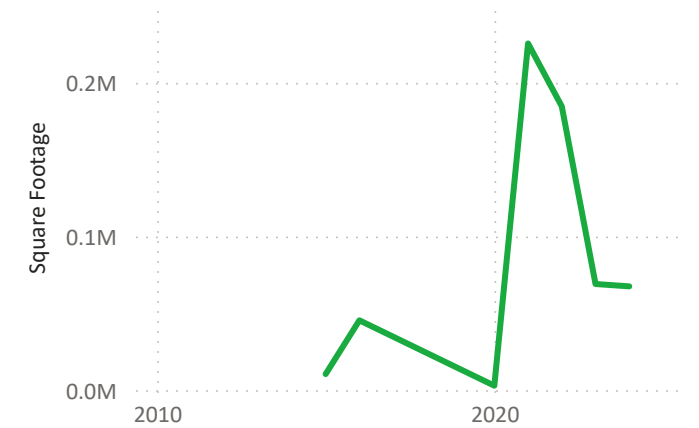
A. Participants by Year and End Use



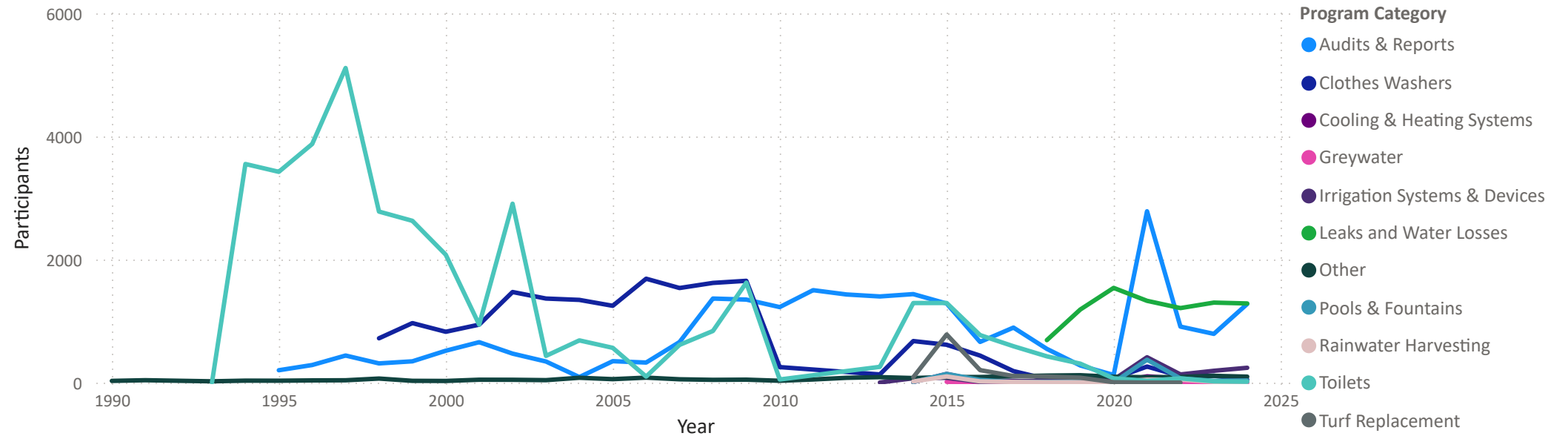
B. Participants by Year and Sector Group



C. Turf Replacement Square Footage



D. Participants by Year and Program Category



Abbreviations:

CII = commercial, industrial, institutional

Notes:

- (a) See Table 4-2 for program end use, sector, category information and detailed program participation data.
- (b) Programs are summarized by Residential, CII, Irrigation, or Multiple sector groups based on their targeted sectors. Programs that cannot be exclusively assigned to the Residential, CII, Irrigation sector groups are assigned to the Multiple sector group.
- (c) Turf replacement includes both turf replacement and mulch rebate programs.
- (d) Participation in outreach events and water waste reports are excluded.

Table 4-3 Estimated Water Savings Achieved by Conservation Programs and Passive Savings
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Water Savings Type	End Use		Program Category	Estimated Annual Water Savings (AFY) (b)																Cumulative Water Savings (AF)
	Sector (a)	Indoor/ Outdoor		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024		
AMI Leak Notifications Program	All	Both	Leaks and Water Losses	0	0	0	0	0	0	0	0	59	161	234	246	218	216	222	1,358	
Flume Direct Distribution	SFR	Indoor	Audits & Reports	0	0	0	0	0	0	0	0	0	0	0	58	72	83	100	313	
SFR Water Use Surveys/Audits Program	SFR	Both	Audits & Reports	13	32	42	50	60	60	50	49	42	32	23	29	28	27	33	571	
Water Use Surveys/Audits Program	MFR, CII, IRR	Outdoor	Audits & Reports	6	8	13	17	18	17	14	11	8	5	2	1	1	0	0	121	
CII Water Use Evaluation Program	CII	Both	Audits & Reports	19	40	51	55	55	47	40	36	27	19	12	10	6	5	4	426	
HET Rebate Program (d)	SFR	Indoor	Toilets	0	0	0	2	11	21	26	30	32	34	33	32	31	30	29	313	
HET Direct Install Program	MFR, CII	Indoor	Toilets	0	0	0	2	10	17	17	16	15	15	14	14	13	13	12	158	
Residential HECW Rebate Program	SFR	Indoor	Clothes Washers	5	5	5	8	23	36	46	50	51	52	54	59	62	64	65	587	
Hot Water Recirculating System	SFR	Indoor	Cooling & Heating Systems	0	0	0	0	0	1	1	1	1	1	1	2	2	3	3	17	
Pool Cover Rebate Program	SFR	Outdoor	Pools & Fountains	0	0	0	0	0	7	9	9	10	10	4	19	22	22	23	136	
Laundry-to-Landscape System	SFR	Outdoor	Greywater	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	5	
Rain Barrel Rebate Program	SFR	Outdoor	Rainwater Harvesting	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	9	
SFR WBIC Rebate Program	SFR	Outdoor	Irrigation Systems & Devices	0	0	0	0	1	2	2	2	2	2	3	10	13	16	19	72	
Large Landscape WBIC Rebate Program	IRR	Outdoor	Irrigation Systems & Devices	0	0	0	0	0	4	9	9	9	9	9	9	9	9	9	85	
SFR Turf Removal Program (e)	SFR	Outdoor	Turf Replacement	0	0	0	0	0	1	5	5	5	5	6	27	45	51	58	208	
Irrigation Improvement Equipment Program	IRR	Outdoor	Irrigation Systems & Devices	0	0	0	0	0	24	34	52	52	52	52	52	52	52	52	476	
Conservation Program Water Savings (Active Savings)				44	87	112	134	179	240	255	271	316	400	448	571	574	592	631	4,855	
Passive Water Savings (f)				122	135	145	151	188	184	167	164	212	198	184	141	128	116	105	2,339	
Total Water Savings				166	221	258	285	367	424	421	436	529	597	632	712	703	708	736	7,194	

Abbreviations

CII = Commercial, Industrial, Institutional
HET = High Efficiency Toilet
HECW = High Efficiency Clothes Washer

IRR= Irrigation
MFR = Multi-family residential
SFR = Single-family residential

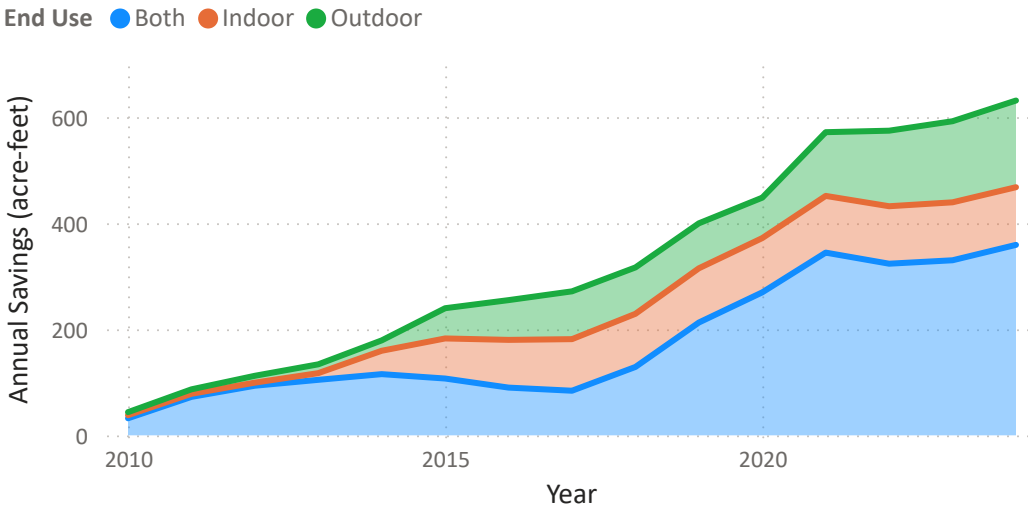
Table 4-3 Estimated Water Savings Achieved by Conservation Programs and Passive Savings
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Notes

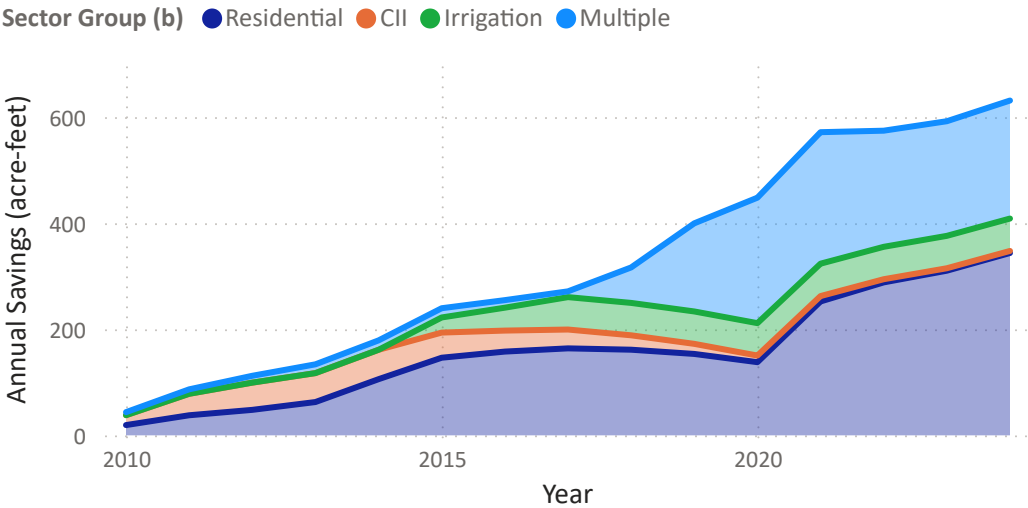
- (a) Predominant sector for program participants.
- (b) Water savings are estimated per the AWE model based on program participation data. Program water saving assumptions are included in Appendix B.
- (c) The water savings associated with the landscape plan review program and the tier 4 exemption program are estimated as a part of passive savings. Additional programs with participation prior to 2010 are not included herein.
- (d) The water savings associated with the time of sale (toilet retrofit program) and ULFT rebate program are estimated as a part of HET rebate program savings.
- (e) The water savings associated with the organic mulch rebate program are estimated as a part of SFR turf removal program savings.
- (f) Passive water savings are water savings associated with the natural change out of water using fixtures and devices with higher efficiency ones, due to plumbing code and market changes. Passive savings are estimated for the whole service area.

Figure 4-2
Estimated Annual Water Savings Achieved by Conservation Programs
 Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

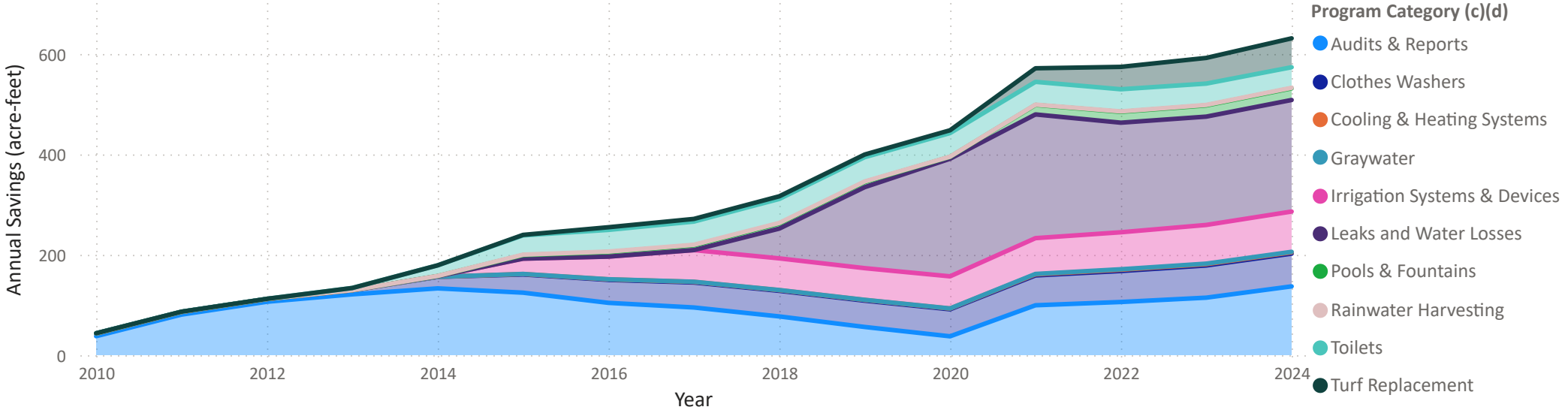
A. Active Conservation Savings by Year and End Use



B. Active Conservation Savings by Year and Sector Group



C. Active Conservation Savings by Year and Program Category



Abbreviations:
 CII = commercial, industrial, institutional

Notes:
 (a) See Table 4-3 for program end use, sector, category information and detailed savings by program.
 (b) Programs are summarized by Residential, CII, Irrigation, or Multiple sector groups based on their targeted sectors. Programs that cannot be exclusively assigned to the Residential, CII, Irrigation sector groups are assigned to the Multiple sector group.
 (c) Turf replacement includes both turf replacement and mulch rebate programs.
 (d) Program categories with minimal historical savings may not be visible from this figure.

5 WATER DEMAND PROJECTIONS

The purpose of this section is to document the basis, methodology, and resulting projected demands for the District through 2050. As described in more detail below, the future water demands for the District were estimated by:

1. Applying an estimated growth rate to accounts within each water use sector based on projected population and employment growth rates,
2. Evaluating and selecting water demand factors for each water use sector based on review of recent average per-account water use representing three scenarios,
3. Estimating future passive savings using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (AWE model), and
4. Calculating estimated future water demand that incorporates the anticipated account growth, water demand factors, and estimated future passive water savings.

This methodology is consistent with California Water Code (CWC) § 10631(d)(4)(A), which requires that “Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.” The assumptions used as the bases for demand projections were developed in close coordination with the District and reflect a land-use based approach consistent with the District’s community planning.

5.1 Basis for Account Growth Projections

Baseline water demand is estimated by multiplying the number of accounts by the sector-specific demand factors, before applying other adjustment factors. In order to estimate how accounts will grow within the District, recent historical account growth within the District was considered, as well as projected future growth in population and employment. As described below, it was assumed that depending on the customer sector, the number of accounts will grow at the same rate as the projected population or employment growth.

Table 5-1 identifies the growth projection assumptions applied to each potable water use sector per the District’s direction and identifies the average annual growth rate in accounts observed within the District from 2015-2024 to provide context for the growth assumptions. Growth for the residential sectors is based on Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) Plan Bay Area 2050 population projections (ABAG, 2021), which are higher than the historical growth observed in the residential sectors from 2015-2024. Similarly, the projected growth for the commercial, institutional, and other sectors is based on the Plan Bay Area 2050 employment projections (ABAG, 2021). Plan Bay Area 2050 projects a decrease in employment; therefore, the commercial, institutional, and other water sector accounts are projected to decrease. The irrigation account growth is based on the multifamily residential growth rate assumptions. No growth is anticipated in the raw and recycled water sectors.

Table 5-2 presents the District’s historical population based on adjusted California Department of Finance estimates provided by the District (MMWD, 2025). The District’s historical

employment and historical employment estimates are per the U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (U.S. Census Bureau, 2025). The population and employment growth projections for the District based on Plan Bay Area 2050 (ABAG, 2021).

Table 5-1 Historical and Projected Account Growth Rate by Customer Sector

Water Use Sector	Basis for Account Growth (b)	Average Annual Growth of Accounts (a)	
		Historical (2015-2024)	Projected Growth Through 2050
Single Family (c)	ABAG Population	0.07%	0.86%
Multifamily (c)	ABAG Population	0.01%	1.87%
Commercial	ABAG Employment	0.07%	-0.44%
Institutional	ABAG Employment	0.18%	-0.44%
Irrigation	Relative to MFR Accounts (d)	0.30%	1.87%
Other	ABAG Employment	0.77%	-0.44%
Raw	No Growth	0%	0%
Recycled	No Growth	0.23%	0%

Abbreviations:

ABAG = Association of Bay Area Governments MMWD = Marin Municipal Water District
CII = commercial, industrial, institutional UWMP = Urban Water Management Plan
MFR = multifamily residential

Notes:

- (a) Growth of the number of accounts is presented on an average annual basis over the indicated period. When applied to account growth, the specific growth rate between each 5-year period was applied.
- (b) ABAG projections include population, households, and employment values (ABAG, 2021). The ABAG household projections project a growth of 21,251 households in the 10-year period between 2025 and 2035, which aligns and is inclusive of the 9,658 new households provided by local 2021-2031 Housing Elements over the 8-year period.
- (c) To reflect a higher proportion of multi-family development from historical patterns, 50% of new households to be built within MMWD are allocated to single family homes and the remainder 50% are allocated multi-family homes. This is consistent with the housing assumptions used in MMWD's 2023 UWMP Update.
- (d) Irrigation growth is based on MFR household growth as no growth is expected in the CII sector.

Table 5-2 Population and Employment Growth Projections
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Category	Growth Projections											Total Growth Rate 2025-2050	Average Annual Growth Rate 2025-2050
	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050		
Population													
Historical Population Estimates (a)	193,206	191,315	188,279	187,329	186,895	--	--	--	--	--	--	--	--
ABAG Population Projections (b)	--	--	--	--	--	190,875	210,778	230,680	236,345	242,009	247,674	30%	1.19%
Single Family Population (c)	--	--	--	--	--	128,329	137,683	147,156	150,074	152,988	155,899	21%	0.86%
Multifamily Population (c)	--	--	--	--	--	62,546	73,095	83,524	86,271	89,021	91,775	47%	1.87%
Employment													
Historical Employment Estimates (d)	78,199	77,058	81,547	--	--	--	--	--	--	--	--	--	--
ABAG Employment Projections	--	--	--	--	--	78,680	73,520	68,360	68,941	69,523	70,104	-11%	-0.44%

Abbreviations:

-- = not available

ABAG = Association of Bay Area Governments

DOF = California Department of Finance

MMWD = Marin Municipal Water District

UWMP = Urban Water Management Plan

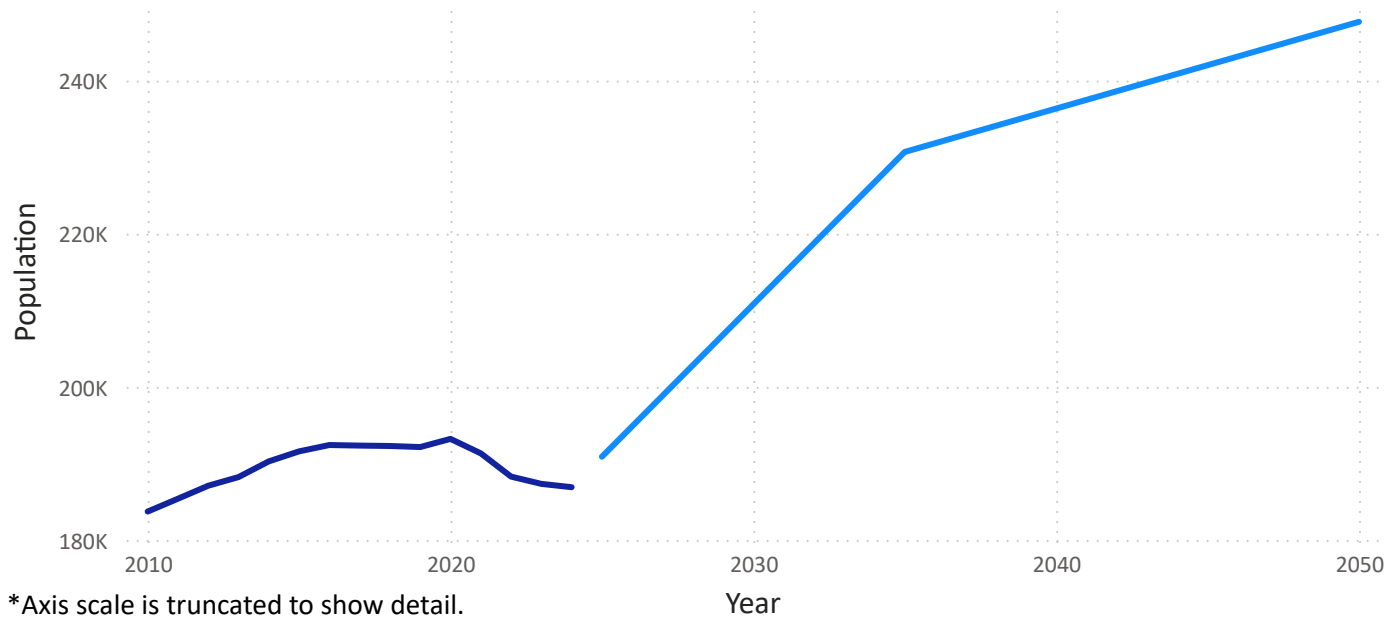
Notes:

- (a) Historical population estimates provided by MMWD staff (MMWD, 2025) and are based on adjusted DOF estimates for MMWD's service area.
- (b) Population and employment projections are based on ABAG, 2021. The ABAG household projections projects a growth of 21,251 households in the 10-year period between 2025 and 2035, which aligns and is inclusive of the 9,658 new households provided by local 2021-2031 Housing Elements over the 8 year period.
- (c) Projected single family and multifamily population is estimated based on the assumption that 50% of new households to be built within MMWD will be single family homes and the remaining 50% will be multifamily homes to reflect a higher proportion of multifamily development from historical patterns. This is consistent with the housing assumptions used in MMWD's 2023 UWMP Update.
- (d) Historical employment estimates per U.S. Census Bureau, 2025.

Figure 5-1 Population and Employment Projections
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Population

Source ● Historical Population ● Projected Population



Employment

Source ● Historical Employment ● Projected Employment

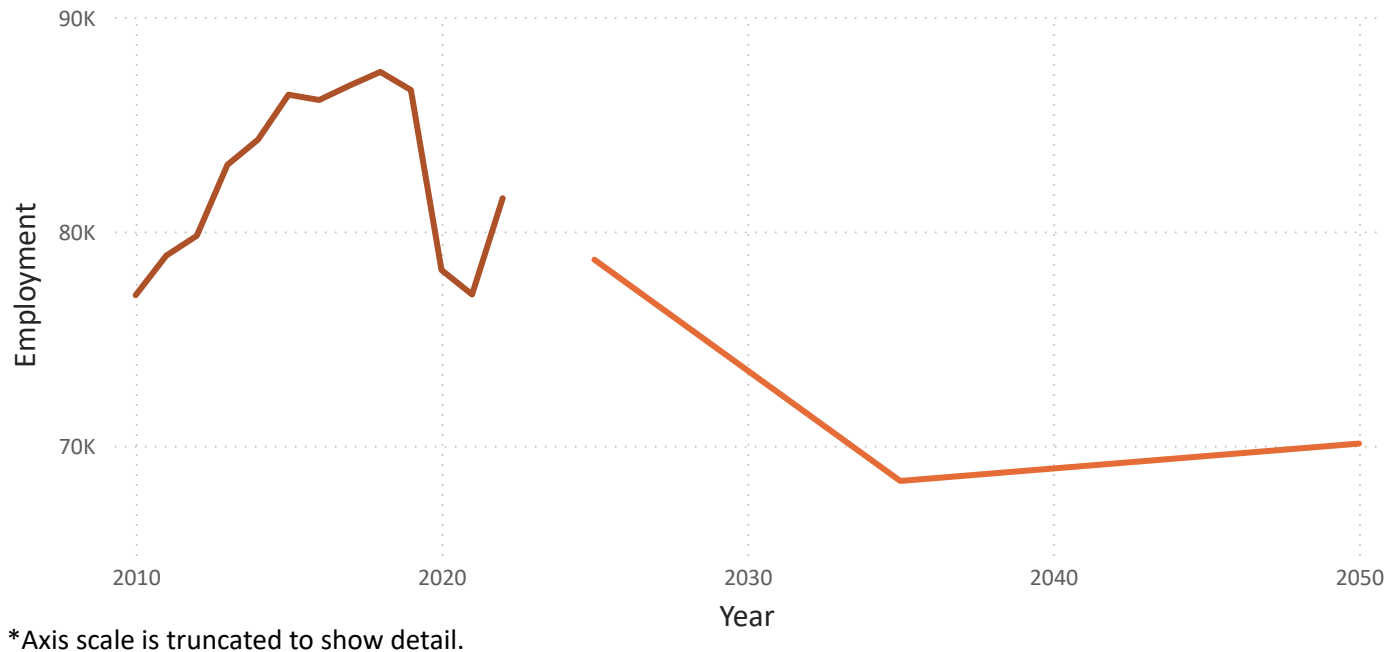


Table 5-3 Projected Number of Accounts

Water Use Sector	Projected Number of Accounts (a)					
	2025	2030	2035	2040	2045	2050
Single Family Residential	52,867	56,720	60,623	61,825	63,025	64,225
Multifamily Residential	3,974	4,644	5,307	5,481	5,656	5,831
Commercial	3,384	3,162	2,940	2,965	2,990	3,015
Institutional	251	234	218	220	222	223
Other	1,455	1,359	1,264	1,275	1,286	1,296
Irrigation	1,243	1,453	1,663	1,718	1,773	1,828
Raw Water	2	2	2	2	2	2
Recycled Water	343	343	343	343	343	343
Notes: (a) Projected number of accounts calculated based on the District’s existing number of accounts and the projected rates of growth shown in Table 5-1 .						

5.2 Planned Development Within the Service Area

There are no developments projects additional to the growth assumptions identified by District staff.

5.3 Water Demand Factors

Water use rates are influenced by a variety of factors, including weather, economic recession, and state and local regulations, among other drivers. Given this, selecting a “representative” baseline is important to developing the land-use based water demand factors to estimate baseline water use by existing customers, which can then be extrapolated and applied to future growth within the District. **Table 5-4** shows the water demand factors used to estimate baseline water demand.

Table 5-4 Selected Water Demand Factors

Water Use Sector Group	Water Demand Factor	Units	Basis for Demand Factor
Water Consumption			
Single Family	228	GPD/account	Minimum of 2017-2019
Multi-family	699	GPD/account	Minimum of 2017-2019
CII Total (a)	973	GPD/account	Minimum of 2017-2019
Irrigation	1,014	GPD/account	Minimum of 2017-2019
Other	19	GPD/account	Partial Rebound from 2024
Raw	85,362	GPD/account	Partial Rebound from 2024
Recycled	1,708	GPD/account	Minimum of 2017-2019
Non-Revenue Water			
Apparent Losses	9.6	GPD/connection	CY 2023 Water Loss Audit
Real Losses	22	GPD/connection	
Unbilled Authorized	1.8	GPD/connection	
Abbreviations: CII = commercial, industrial, institutional CY = calendar year GPD = gallons per day			
Note: (a) Represents the combined demands of all CII sectors with mixed-use meters. The CII sectors are evaluated as a single group as the same growth rate is applied uniformly across all CII sectors; therefore, it is mathematically equivalent to projecting each sector individually and summing the results. Final projected demands are then allocated back to each CII sector based on their relative proportions within the CII Total group.			

5.3.1 Potable Water

Water demand factors based on historical use within the District were used as the basis of future demand projections for potable water accounts. As discussed in Section 3.2, the District's per account water use declined significantly over the past 15 years due to improvements in water use efficiency and showed significant response to key events such as the 2014-2017 drought, the 2021-2023 drought, and the COVID-19 pandemic. Current (2024) water use is below historical levels. Potable water demand factors were developed using the following approach:

- **Single family, Multi-family, CII, irrigation, and recycled water sectors:** 2024 per-account water use for these sectors remains within 75% of their 2017-2019 levels. Therefore, the water demand factors are based on the minimum per-account annual water use observed from 2017-19, which reflects the lower levels of recent water use, but allowing rebound to pre-2020 conditions.
- **Raw water sector and other accounts:** 2024 per-account water use for these sectors has fallen below 75% of 2017-2019 levels. As such, water demand factors are developed based on a partial rebound from 2024 per-account annual water use, recognizing that some increase is likely, but a full return to pre-drought and pre-pandemic conditions is not anticipated.

5.3.2 Recycled Water

As discussed in Section 3.2, the District's per account historical water use for recycled water followed similar trends to the District's potable account water use (i.e., 2024 water use is below historical levels). Therefore, the recycled water demand factor is similarly developed based on the minimum per account annual water use by sector for 2017 through 2019.

5.3.3 Non-Revenue Water and Water Loss

Non-revenue water is water that has been produced but not billed and thus does not generate revenue for the supplier. To more fully capture total water use within the District, non-revenue water is estimated based on a sum of (1) unbilled authorized uses (such as water for fighting fires and flushing mains), (2) apparent water loss due to metering inaccuracies, and (3) real water loss due to distribution system leaks. Rates of non-revenue water in gpd per service connection are based on the District's Calendar Year (CY) 2023 water loss report.

5.4 Passive Water Savings Estimate

Passive water savings are the water savings associated with the natural replacement of older toilets, showerheads, clothes washers, and other water using appliances with newer high efficiency devices that are available due to both market shifts and increasing efficiency mandated by the building code and other regulatory requirements. The AWE model was used to estimate future passive savings within the District (AWE, 2021). These future water savings are a result of plumbing/energy codes interacting with the natural replacement of toilets, showerheads, and other water using appliances whose current or future efficiency is dictated by national, state, or local code requirements. The AWE model calculates efficient plumbing fixture saturation rates and takes into account historical and projected replacement of plumbing fixtures by utility programs as well as natural replacement. The AWE model also considers estimates of historical population, residential building stock, number of accounts, and projected population and account growth to estimate future passive savings.

An adjustment factor of 76% is applied to the AWE model estimates to conservatively cap passive savings at the levels estimated in the 2020 Water Demand and Conservation Measure Report (EKI, 2020). Water demand estimated based on the water demand factors and the projected number of accounts, before applying passive saving estimates, are represented in **Table 5-5**. The estimated passive savings are presented in **Table 5-6** and are subtracted from the water demand shown in **Table 5-5**. Passive savings are only applied to potable water use.

5.5 Projected Water Demand Through 2050

Future potable water demand was projected for each sector based on their respective demand factors, non-revenue water estimated as a proportion of total potable water production, and estimated passive savings, and is shown in **Table 5-7**. Potable water demand is projected to increase to 26,674 AFY in 2050, which is a 22% increase over 2024 potable water demand. Raw water demand and recycled water demand are projected to be 191 AFY and 656 AFY over the planning horizon, respectively, since no growth is anticipated within those sectors.

Table 5-5 Projected Water Demand by Sector without Passive Conservation

Water Use Sector	Projected Demand without Passive Conservation (AFY) (a)					
	2025	2030	2035	2040	2045	2050
Potable Water						
Single Family Residential	13,502	14,486	15,483	15,790	16,096	16,403
Multifamily Residential	3,112	3,636	4,155	4,292	4,429	4,566
Commercial	2,414	2,256	2,098	2,115	2,133	2,151
Institutional	1,547	1,445	1,344	1,355	1,367	1,378
Other	31	29	27	27	27	28
Irrigation	1,412	1,651	1,889	1,951	2,014	2,076
Non-Revenue Water	2,326	2,488	2,651	2,705	2,760	2,814
Total Potable Demand (b)	24,343	25,991	27,647	28,236	28,825	29,414
Raw Water						
Raw Water Demand	191	191	191	191	191	191
Total Raw Water Demand	191	191	191	191	191	191
Recycled Water						
Recycled Water Demand	656	656	656	656	656	656
Total Recycled Water Demand	656	656	656	656	656	656
Abbreviation: AFY = acre-feet per year Notes: (a) Water demand projections are estimated based on growth in accounts shown in Table 5-1 and the water demand factors identified in Table 5-4 . Non-revenue water projections are estimated by water loss factors shown in Table 5-4 and the total growth in number of services from all sectors. (b) Totals may not sum due to rounding.						

Table 5-6 Projected Demand and Passive Conservation

	Projected Demand (AFY) (a)					
	2025	2030	2035	2040	2045	2050
Potable Water						
Baseline Potable Water Demand	24,343	25,991	27,647	28,236	28,825	29,414
Passive Water Conservation (b)	(198)	(1,117)	(1,917)	(2,238)	(2,505)	(2,740)
Total Potable Water Demand (c)	24,146	24,874	25,729	25,999	26,321	26,674
Raw Water						
Raw Water Demand	191	191	191	191	191	191
Total Raw Water Demand	191	191	191	191	191	191
Recycled Water						
Recycled Water Demand	656	656	656	656	656	656
Total Recycled Water Demand	656	656	656	656	656	656
Total Water Demand (c)	24,993	25,722	26,577	26,846	27,168	27,521
Abbreviations: AFY = acre-feet per year AWE = Alliance for Water Efficiency Notes: (a) Water demand projections are estimated based on growth in accounts shown in Table 5-1 and the water demand factors identified in Table 5-4 . Non-revenue water projections are estimated by water loss factors shown in Table 5-4 and the total growth in number of services from all sectors. (b) Passive water savings calculated from the AWE Conservation Tracking Tool; however, the savings were conservatively capped at the 2020 Water Demand and Conservation Measure Report estimate. (c) Totals may not sum due to rounding.						

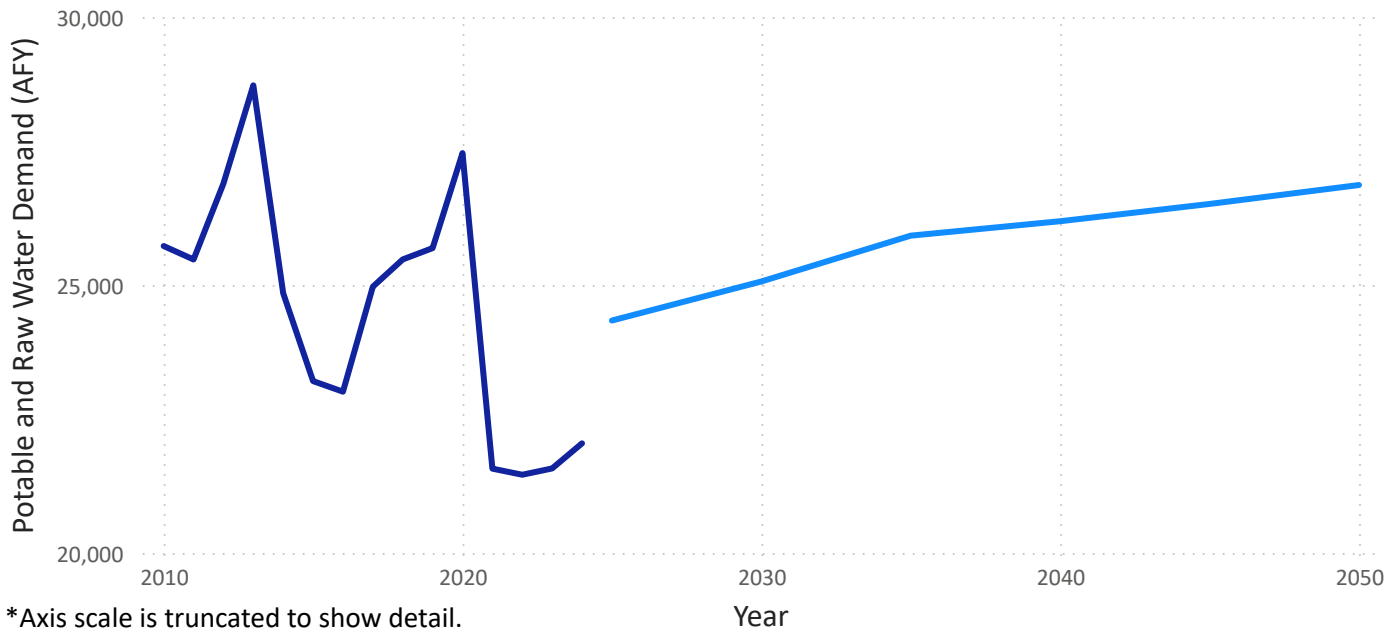
Table 5-7 Projected Water Demand by Sector with Passive Conservation

Water Use Sector	Projected Demand with Passive Conservation (AFY) (a)					
	2025	2030	2035	2040	2045	2050
Potable Water						
Single Family Residential	13,401	13,906	14,501	14,638	14,810	15,001
Multifamily Residential	3,040	3,238	3,462	3,500	3,549	3,606
Commercial	2,399	2,171	1,949	1,936	1,927	1,920
Institutional	1,537	1,391	1,249	1,241	1,234	1,230
Other	31	29	27	27	27	28
Irrigation	1,412	1,651	1,889	1,951	2,014	2,076
Non-Revenue Water	2,326	2,488	2,651	2,705	2,760	2,814
Total Potable Demand (b)	24,146	24,874	25,729	25,999	26,321	26,674
Raw Water						
Raw Water Demand	191	191	191	191	191	191
Total Raw Water Demand	191	191	191	191	191	191
Recycled Water						
Recycled Water Demand	656	656	656	656	656	656
Total Recycled Water Demand	656	656	656	656	656	656
Abbreviation: AFY = acre-feet per year Notes: (a) Water demand projections are estimated based on growth in accounts shown in Table 5-1 , the water demand factors identified in Table 5-4 , and incorporates the passive savings shown in Table 5-6 . Non-revenue water projections are estimated by water loss factors shown in Table 5-4 and the total growth in number of services from all sectors. (b) Passive savings for each sector calculated from the AWE Conservation Tracking Tool and adjusted to cap savings conservatively at levels estimated in the 2020 Water Demand and Conservation Measure Report. (a) Totals may not sum due to rounding.						

Figure 5-2 Projected Water Demand with Passive Conservation
 Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

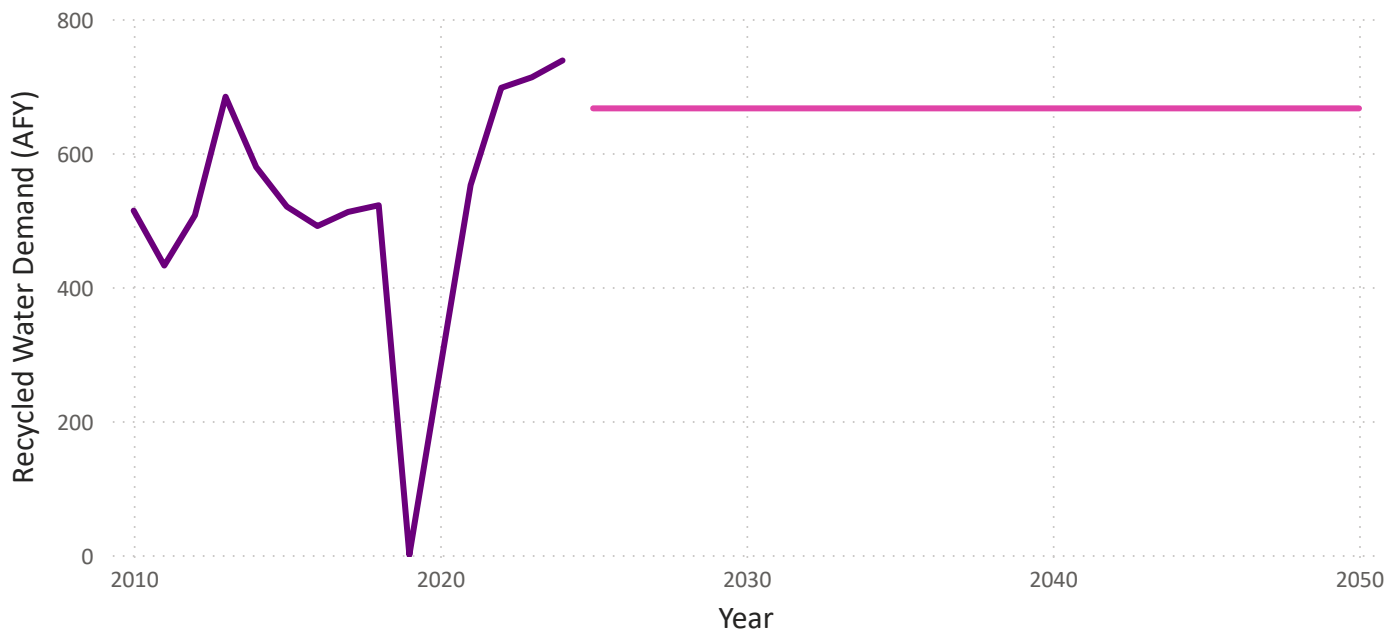
Potable and Raw Water Demand

Source ● Historical Demand ● Projected Demand



Recycled Water Demand

Source ● Historical Demand ● Projected Demand



Abbreviations:

AFY = acre-feet per year

5.6 Projected Compliance with UWUOs

To forecast the District's Objective compliance, a analysis was conducted comparing the District's projected water use to its Objectives for 2025, 2030, 2035, and 2040. The projected water demands subjective to the Objectives and the corresponding Objectives are calculated using the following data sources and assumptions:

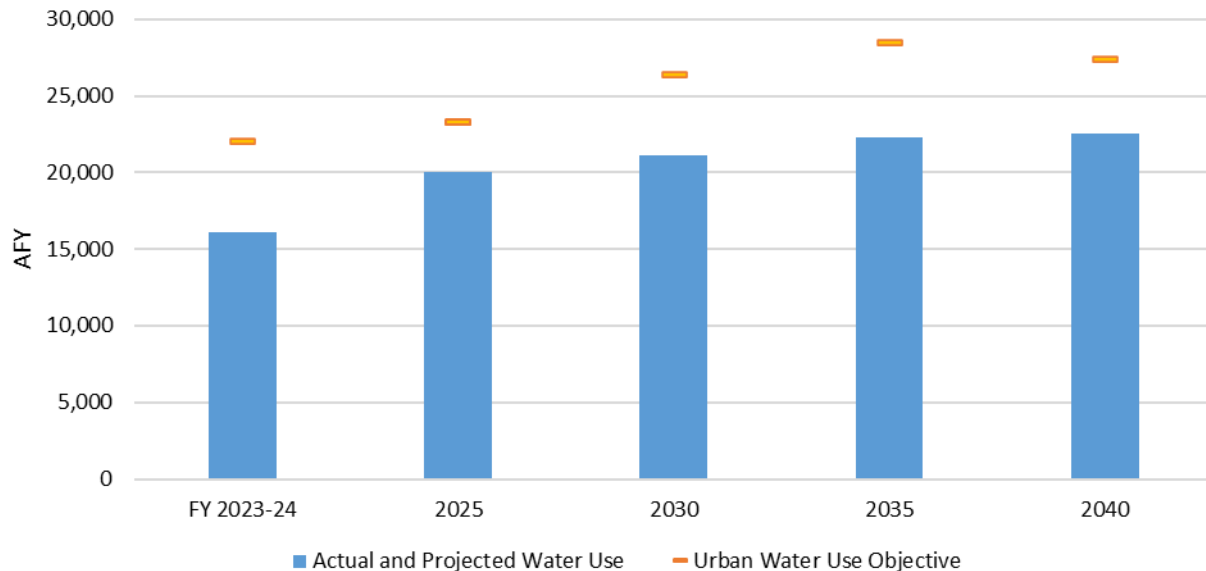
- Projected population, water use components subjective to the objectives (e.g., residential water use and dedicated irrigation water use), and real water loss described in Sections 5.1 and 5.5;
- Decreasing Objective water use standards through 2040 as described in Section 2.2.1;
- Residential landscape area based on values reported in the District's Fiscal Year (FY) 2023-24 UWUO Annual Report and increasing proportional to population projections;
- Existing (2025) CII landscape area on DIMs irrigated with potable water estimated from projected 2025 water use assuming a LEF of 0.80;
- Future CII landscape area on DIMs irrigated with potable water increasing proportionally with District's irrigation accounts; and
- CII landscape area on DIMs irrigated with recycled water (i.e., Special Landscape Area) estimated from a water use of 656 AFY assuming a LEF of 1.0.

The results of this analysis show that the District is anticipated to comply with its Objectives through 2040, as shown below in **Table 5-8** and **Figure 5-3**. **Figure 5-4** compares projected values of each Objective component from 2025 through 2040 to examine relative contributions to Objectives compliance. However, agencies are only assessed against the overall Objective (i.e., they are not required to comply with the individual water use standards as long as they meet the overall Objective).

Table 5-8 Actual and Projected Water Use vs. Urban Water Use Objectives

Year (a)	Actual and Projected Water Use Subject to the Objectives (b) (AFY)	UWUO (AFY)
FY 2023-24	16,060	22,005
2025	20,041	23,220
2030	21,090	26,397
2035	22,254	28,450
2040	22,526	27,420

Figure 5-3 Actual and Projected Water Use vs. Urban Water Use Objectives



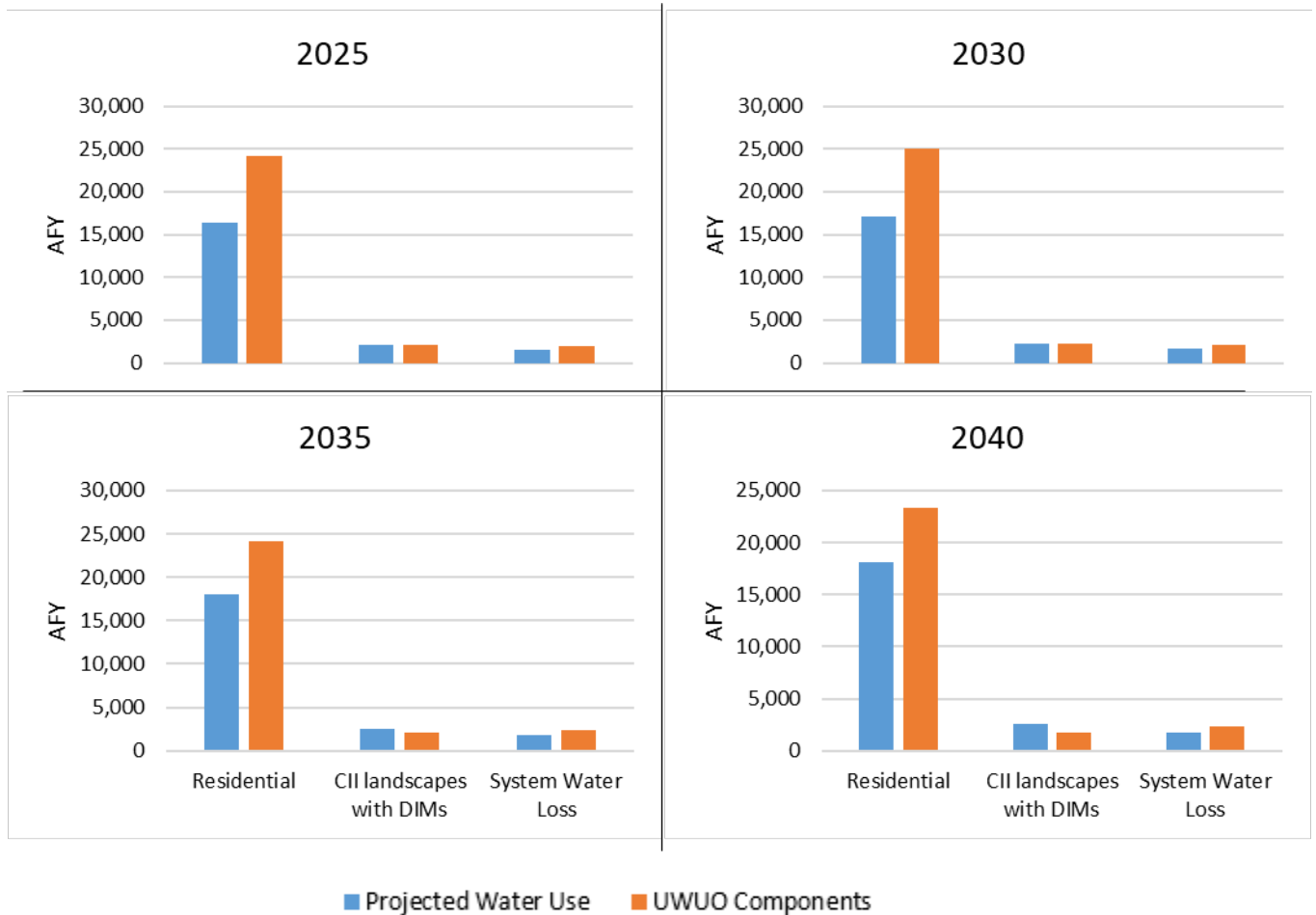
Abbreviations:

AFY = acre-feet
CY = calendar year
FY = fiscal year
UWUO = Urban Water Use Objective

Notes:

- (a) Calendar years unless otherwise noted.
- (b) Only includes the water use components that are subject to the Objective.

Figure 5-4 Projected Water Use vs. Urban Water Use Objectives by Component



Abbreviations:

AFY = acre-feet per year
CII = commercial, industrial, and institutional
DIM = dedicated irrigation meter
UWUO = Urban Water Use Objective

Notes:

This figure provides a comparison for each component to examine their relative contributions to Objectives compliance. However, agencies are only assessed against the overall Objective (i.e., they are not required to comply with the individual water use standards as long as they meet the overall Objective).

6 CONSERVATION MEASURES UPDATE

The following section evaluates current and potential conservation programs and measures for both the District and the SMSWP. The purpose of this section is to compile programs and measures that are prioritized by both the District and by all Water Contractors in the SMSWP collectively and calculate the potential water savings and economic feasibility of the programs. Section 6.1 discusses the methodology used to prioritize conservation programs and measures. Section 6.2 describes the programs and measures given high priority for regional implementation by the nine Water Contractors collectively, and Section 6.3 describes programs and measures given high priority by the District. Next steps will include analyzing the potential water savings and cost-benefit for those programs selected by the District as both individual programs and in select program portfolios. By assessing the feasibility of these programs, the District can make more informed decisions regarding program selection and implementation.

6.1 Methodology for Screening of Potential Water Conservation Measures

A comprehensive ranking list of over 100 conservation programs and measures was developed (Appendix C) to help agencies prioritize future conservation efforts and update the suite of common measures for modeling and future implementation, as required for the 2025 UWMPs. The Water Contractors ranked their priority projects and measures, which will contribute to the broader goals of forecasting demand through 2050, evaluating demand management strategies, and meeting regulatory goals.

The list includes the measures from the prior (2015 and 2020) screenings, minus those that are now obsolete, and new measures and technologies. New measures came from the library of the AWE Conservation Tracking Tool, version 4.0, and other identified measures per literature or implemented by other suppliers, including those that are available to the industry since 2020. The list also included measures currently implemented by the Water Contractors, and the priority rankings selected in 2020.

Each of the nine Water Contractors was first asked to review and identify any additional programs to add to the ranking list. Following receipt of feedback from the Water Contractors, each Water Contractor was asked to rank the list and identify:

- Priority (on a scale of one to five, with five being the highest priority) as a program to be implemented regionally through the SMSWP;
- Priority (on a scale of one to five, with five being the highest priority) as a program to be implemented locally through their agency;
- The current implementation status with options of (1) currently administered by their agency, (2) previously administered by their agency, or (3) current regional program through SMSWP.

The list of water conservation measures is organized into four categories, specifically: (1) agency actions and water rates, (2) public outreach and education, (3) device-based and financial incentive programs, and (4) policies and regulations.

6.2 Screening of Conservation Measures for Regional Implementation

The regional results of the water conservation measures prioritization screening are summarized for all Water Contractors combined, representing overall regional priorities and preferences (**Table 6-1**), which shows (1) the average prioritization ranking for all Water Contractors for each program for regional implementation, (2) the percentage of Water Contractors that prefer each program to be implemented at the regional level, and (3) indication of each measure as a current SMSWP program or not.

Of the 116 measures and programs ranked, the Water Contractors screened these down to 11 high-priority measures that received an average score of three or more and were comprised of two of the four categories, including Public Outreach and Education Based Conservation Programs and Device-Based and Financial Incentive Programs.

6.2.1 Public Outreach and Education-Based Conservation Programs

Of the 14 public outreach and education-based water conservation programs included in the screening, the Water Contractors identified the following eight programs as high priority (average score of three or higher), with a preference for regional implementation through SMSWP:

- 1) Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation
- 2) School Education Programs
- 3) Promote QWEL Training
- 4) Public Outreach through Print & Electronic Media - Focused on Indoor Conservation
- 5) Educational Workshops
- 6) Garden Tour
- 7) Do-It-Yourself Home Energy and Water Savings Toolkit
- 8) Garden Sense Consultation

These eight programs are already currently implemented by SMWSP.

6.2.2 Device and Financial Incentive-Based Conservation Programs

Of the 60 device- and financial incentive-based water conservation programs included in the screening list, the Water Contractors identified the following three programs as high priority (average score of three or higher), with a preference for regional implementation through SMSWP, through pass-through grant funding:

- 1) Landscape Conversion or Turf Removal – SFR
- 2) Landscape Conversion or Turf Removal – MFR and CII
- 3) High Efficiency Clothes Washer Rebate – Residential

Table 6-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Preference (b)	Sector	Indoor	Outdoor	Primary End Use	Current SMSWP Program
PUBLIC OUTREACH AND EDUCATION							
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	4.4	100%	All		X	Irrigation	✓
School Education Programs	4.0	100%	SFR, MFR	X	X	All	✓
Promote QWEL Training (Qualified Water efficient Landscaper)	3.9	89%	All		X	All Outdoor	✓
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	3.7	89%	All	X		All Indoor	✓
Educational Workshops	3.3	78%	All		X	All Outdoor	✓
Garden Tour	3.2	78%	SFR		X	All Outdoor	✓
Garden Sense Consultation	3.1	78%	SFR		X	All Outdoor	✓
Do-It-Yourself Home Energy and Water Savings Toolkit	3.2	78%	SFR	X	X	All	✓
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS							
Landscape Conversion or Turf Removal - SFR	3.3	67%	SFR		X	Irrigation	✗
Landscape Conversion or Turf Removal - MFR and CII	3.2	67%	MFR, CII		X	Irrigation	✗
High Efficiency Clothes Washer Rebate - Residential	3.1	67%	SFR, MFR	X		Clothes Washer	✗

Abbreviations:

AMI = advanced metering infrastructure

CalWEP = California Water Efficiency Partnership

CII = commercial, industrial, institutional

COM = commercial

HEU = High-Efficiency Urinals

IRR = irrigation

MFR = multi-family residential

MWEL = Model Water Efficient Landscape Ordinance

PRV = pressure reducing valve

SFR = single-family residential

SMSWP = Sonoma-Marín Saving Water Partnership

UHET = ultra high efficiency toilet

Notes:

(a) Each Water Contractor was asked to rank each conservation program or measure in terms of priority as a regionally-administered program, where 5 indicated highest priority and 1 indicated the lowest priority. Results are presented as an average of the responses of all nine Water Contractors.

(b) Presents the percentage of Water Contractors who indicated a priority of greater or equal to 3 for regional implementation.

6.2.3 Regional Program Screening Findings

During the May 2025 project workshop, the Water Contractors indicated that the three device- and financial incentive- based programs identified under Section 6.2.2 are already being implemented at the local level and expressed a preference for them to continue to be implemented at a local level. The takeaway from this exercise is that the existing SMWSP public and education-based programs should remain regional programs and that there is currently no preference for new regional programs.

6.3 Screening of Conservation Measures for Local Implementation

The local results of water conservation program prioritization screening were summarized for all Water Contractors individually, representing their local priorities and preferences. Appendix C presents the results for the District and shows (1) the average prioritization ranking for each program for local implementation, (2) the targeted sector, (3) whether the program targets indoor or outdoor savings; (4) the primary end use; and (5) the implementation status as a local program.

6.3.1 Agency Actions and Water Rate Conservation Programs

Eight agency action and water rate-based conservation programs were identified for the District as high priority (score of three or more) for potential future implementation. Of these programs, one has been implemented at the local level, either currently or in the past. The program currently implemented by the District targets all end use by residential customers or CII customers. The remaining seven potential new programs identified as high priority are as follows, in general order of priority, with five programs (**bolded**) on the list receiving a score of five:

- 1) **Install AMI for Existing Accounts**
- 2) **Install AMI for High Water Users and Large Landscape Accounts**
- 3) **Install AMI in New Development**
- 4) **End Point Leak Detection and Flow Monitoring**
- 5) **Behavior Based Customer Messaging Platforms**
- 6) Water Budgeting/Monitoring for Large Landscape Accounts
- 7) Implementation or Modification of Tiered Water Rates (Conservation Pricing)

6.3.2 Public Outreach and Education Based Conservation Programs

Nine public outreach and education-based programs were identified as high priority (average score of three or higher) for potential future implementation. Of these programs, two would target outdoor water use, one would target indoor use, and six would target indoor and outdoor water use. Six of these programs are currently implemented at the local level. The remaining three potential new programs identified as high priority are as follows, in general order of priority, with one program (**bolded**) on the list receiving a score of five:

- 1) **Promote QWEL Training (Qualified Water Efficient Landscaper)**
- 2) Garden Tour

3) SFR Home Water Report

6.3.3 Device and Financial Incentive Based Conservation Programs

Forty-seven (47) device- and financial incentive- based water conservation programs were identified as high priority (average score of three or higher) for potential future implementation, including 29 that would target indoor water use, 15 that would target outdoor water use, one that would target both, and two that would target cooling tower use. The District implements 32 of these programs at the local level, either currently or in the past, primarily targeting irrigation equipment rebates, bathroom fixture replacements or turf conversion. The remaining 15 potential new programs identified are as follows, in general order of priority, with two programs (**bolded**) on the list receiving a score of five:

1) Incentivize Irrigation Equipment Upgrades - SFR

2) Commercial Landscape Irrigation Improvement Program (CLIP) Rebates

- 3) Do-It-Yourself Home Energy and Water Savings Toolkit
- 4) Pilot Spring Irrigation Repairs Rebate
- 5) Toilet Flapper Giveaway - Residential and CII
- 6) Urinal Direct Installation – CII
- 7) Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates
- 8) Nozzle Replacement Irrigation CII - Large Landscape
- 9) In-Stem Flow Regulators
- 10) Incentivize Submetering for Existing Customers - MFR, CII
- 11) Incentivize Submetering of Cooling Towers for Existing Customers
- 12) Flow Sensor Rebate Irrigation System
- 13) SFR Wireless Flow Monitor
- 14) Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs
- 15) Pool Removal Rebates

6.3.4 Policy and Regulation Based Conservation Programs

The District identified 22 policy and regulation-based programs as high priority (average score of three or higher), including eight that would target indoor water use, ten that would target outdoor water use, one that would target both, one that would target CII equipment use, and two that would target cooling tower use. The District currently implements 11 of these programs. The remaining 11 potential new programs identified are as follows, in general order of priority:

- 1) Demand Offset/Water Neutral Policy for Large New Developments
- 2) Require Hot Water on Demand / Structured Plumbing in New Residential Development
- 3) Require Irrigation Designers / Installers be Certified (QWEL)
- 4) Require Submetering by Unit for Existing Commercial Customers

- 5) Require Submetering by Unit for New Commercial Developments
- 6) Require Submetering for New MFR Developments
- 7) Require Submetering for New Mobile Home Park Developments
- 8) Require Submetering of Existing MFR (and Mobile Home Park) Customers
- 9) Require Submetering of Cooling Towers for Existing Customers
- 10) Require Submetering of Cooling Towers for New Development
- 11) Require Water Efficiency Plan Reviews for New CII Development

6.4 Evaluation of Future Water Conservation Programs

Based on the conservation screening process described above, a suite of conservation programs to be considered for future implementation were evaluated. These programs were evaluated both individually and as components in four water conservation program scenarios, as shown in **Table 6-2**. The program scenarios each represent a potential approach or strategy for the District's future conservation programs, specifically:

- **Scenario A** represents the District's existing programs as a baseline,
- **Scenario B** represents programs ranked most highly for local implementation by the District,
- **Scenario C** focuses on programs that target outdoor water savings under Scenario B, and
- **Scenario D** focuses on programs that target water savings in CII customers under Scenario B.

Table 6-2 also identifies the customer sectors each program would target as well as whether the program focuses on indoor or outdoor water use, or both.

The benefits and costs associated with implementation of these programs were evaluated using the AWE model, using a series of assumptions documented in Appendix B. Key assumptions and considerations related to the methodology used by the AWE model and in this analysis are provided below:

- Water savings assumptions were based on a combination of (1) District's 20XX Water Efficiency Master Plan modeling (MMWD, 2024), (2) AWE model default assumptions, (3) water savings factors developed based on other published literature sources, and (4) water savings estimates developed for other Water Contractors.
- Costs to the utility were based on (1) rebate amounts of existing programs, (2) District's 20XX Water Efficiency Master Plan modeling (MMWD, 2024), or (3) AWE model default assumptions.
- Utility benefit (i.e., avoided cost of water) is assumed to be \$1,278/AF, consistent with the FY 2024-2025 cost of purchasing wholesale water from Sonoma Water.
- Financial assumptions related to customer water rates were provided by the District.

- Financial assumptions related to energy costs to the customer were assumed based on typical PG&E rates (PG&E, 2024).
- Assumed rate of program implementation was based on historical participation levels by District customers in similar programs.
- For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2026 through 2030; water savings beyond this period reflect cumulative savings achieved over time from implementation during this five-year period.
- Lost revenue due to reduced water sales is not included as a cost.
- Additional program-specific considerations are provided as notes in the attached tables.

Table 6-3 presents a combination of individual water conservation measures, and identifies the following information for each program:

- **Net present value of costs and benefits** – represents the present value over the 25-year period discounted to current 2025 dollars.
- **Benefit to cost ratio** – calculated as present value of costs divided by the present value of benefits.
- **Water utility costs** – costs that the District as a water utility will incur to operate the program including administrative costs.
- **Customer costs** – costs customers will incur to implement a program in the District’s service area.
- **Utility benefits** – the avoided cost to the District to produce the volume of water saved.
- **Customer benefits** – the savings from reduced water/sewer utility bills and energy savings resulting from reduced use of hot water.
- **Total water utility costs** – includes costs to the District for program implementation from 2026-2030.
- **Water savings in 2030** – one-year estimate water savings in 2030.
- **Water utility cost of water saved for individual programs** – cost of water saved dividing by the lifetime water savings of that program.
- **Water utility cost of water saved for program scenarios** – weighted average of water utility cost of water saved for individual programs by the cumulative savings through 2050.

The analysis estimates active program savings based on the AWE model and does not include additional savings anticipated from passive savings (i.e., water savings associated with the natural replacement of less efficient water using fixtures and appliances due to both market shifts and increasing efficiency mandated by the building code and other regulatory requirements). Based on this analysis, and the assumptions presented in Appendix B, the benefit-cost ratios for the District range from 0.2 to 21.5. A benefit-cost ratio value greater than one indicates that the cost of implementing the program would be cheaper than purchasing supplies from Sonoma Water.

Table 6-4 presents the results of the analysis of the four conservation program scenarios identified in **Table 6-3**, and includes a summary of costs and benefits to the District and customers, estimated cumulative water savings through 2050 (based on assumed program implementation from 2026-2030), and the estimated cost of water saved to the District. Based on this, the District's preferred water conservation measures for local implementation (i.e., Scenario B) and its existing programs (i.e., Scenario A) have similar benefit-to-cost ratios at 1.0 and 0.9, respectively. In comparison, the benefit to cost ratio of outdoor programs (i.e., Scenario C) is 0.7 and CII programs (i.e., Scenario D) is 0.8. The projected cumulative water savings associated with implementation of locally preferred measures (i.e., Scenario B) is 5,003 AF by 2030 and 6,426 by 2050, at a cost of approximately \$1190/AF. The figure in **Table 6-4** shows active savings in 2030 associated with each scenario as well as anticipated passive savings.

Table 6-2 Conservation Program Scenarios
Marin Municipal Water District, Sonoma-Marin Water Saving Partnership

Program	Sector	Indoor/ Outdoor	Program Scenario (a)			
			(A) Baseline	(B) Highly- Ranked Local Programs	(C) Highly- Ranked Outdoor Programs	(D) Highly- Ranked CII Programs
AMI Leak Notifications Program	All	Both	X	X		
Flume Direct Distribution	SFR	Both	X	X		
SFR Water Use Surveys/Audits Program	SFR	Both	X	X		
Water Use Surveys/Audits Program	MFR, CII, IRR	Outdoor	X	X	X	X
CII Water Use Evaluation Program	CII	Both	X	X		X
HET Rebate Program	SFR	Indoor	X	X		
HET Direct Install Program	MFR, CII	Indoor	X	X		
Residential HECW Rebate Program	SFR	Indoor	X			
Hot Water Recirculating System	SFR	Indoor	X	X		
Pool Cover Rebate Program	SFR	Outdoor	X	X	X	
Laundry-to-Landscape System	SFR	Outdoor	X	X	X	
Rain Barrel Rebate Program	SFR	Outdoor	X	X	X	
SFR WBIC Rebate Program	SFR	Outdoor	X	X	X	
Large Landscape WBIC Rebate Program	IRR	Outdoor	X	X	X	X
SFR Turf Removal Program	SFR	Outdoor	X	X	X	
Custom Rebate	CII, MFR, IRR	Both	X	X		X
Behavior Based Customer Messaging Platforms	SFR, MFR	Both		X		
High Efficiency Clothes Washer Rebate Program - CII	CII	Indoor		X		X
MFR CII Turf Removal Program	MFR, CII	Outdoor		X	X	X
<i>Incentivize Irrigation Equipment Upgrades - SFR (b)</i>						
SFR Irrigation Nozzle Replacement	SFR	Outdoor		X	X	
SFR Irrigation System Flow Sensor Rebate	SFR	Outdoor		X	X	
<i>Irrigation Improvement Equipment Program (b)</i>						
Large Landscape Irrigation Nozzle Replacement	IRR	Outdoor		X	X	X
Large Landscape Irrigation System Flow Sensor Rebate	IRR	Outdoor		X	X	X
Water Budgeting/Monitoring for Large Landscape Accounts	IRR	Outdoor		X	X	X

Abbreviations

AMI = Advanced Metering Infrastructure
CII = Commercial, Industrial, and Institutional
HET = high-efficiency toilet

SFR = single-family residential
WBIC = weather-based irrigation controller
WEMP = Water Efficiency Master Plan

Notes

- (a) The program scenarios represent four potential approaches to program selection. Scenario 1 represents existing programs as a baseline, Scenario 2 represents programs prioritized for local implementation, Scenario 3 focuses on outdoor water savings, and Scenario 4 focuses on CII programs.
- (b) Irrigation System Equipment programs are modeled as a combination of irrigation nozzle and flow sensor replacements.

Table 6-3 Costs and Savings of Potential Conservation Programs
Marin Municipal Water District, Sonoma-Marin Water Saving Partnership

Program (a)	Sector	Indoor/ Outdoor	Net Present Value of Benefits		Net Present Value of Cost		Benefit to Cost Ratio		Water Utility Costs 2026-2030 (b)	Water Savings in 2030 (AFY)	Water Utility Cost of Water Saved (\$/AF)
			Water Utility	Customers	Water Utility	Customers	Water Utility	Customers			
AMI Leak Notifications Program	All	Both	\$628,672	\$3,231,510	\$372,101	\$1,144,927	1.7	2.8	\$406,250	107.4	\$756
Flume Direct Distribution	SFR	Both	\$743,790	\$5,732,678	\$313,746	\$522,911	2.4	11.0	\$375,000	72.3	\$519
SFR Water Use Surveys/Audits Program	SFR	Both	\$144,786	\$1,121,639	\$763,019	\$0	0.2	-	\$860,000	25.9	\$6,645
Water Use Surveys/Audits Program	MFR, CII, IRR	Outdoor	\$404,692	\$4,717,445	\$665,424	\$831,780	0.6	5.7	\$750,000	72.4	\$2,073
CII Water Use Evaluation Program	CII	Both	\$134,909	\$1,572,616	\$221,808	\$277,260	0.6	5.7	\$250,000	24.1	\$2,073
HET Rebate Program	SFR	Indoor	\$22,839	\$117,398	\$20,918	\$21,454	1.1	5.5	\$39,780	1.5	\$1,582
HET Direct Install Program	MFR, CII	Indoor	\$56,705	\$291,476	\$93,311	\$0	0.6	-	\$177,450	3.8	\$2,842
Residential HECW Rebate Program	SFR	Indoor	\$184,526	\$1,677,289	\$92,214	\$354,671	2.0	4.7	\$115,635	12.8	\$601
Hot Water Recirculating System	SFR	Indoor	\$12,165	\$302,758	\$10,659	\$122,989	1.1	2.5	\$12,740	1.2	\$1,077
Pool Cover Rebate Program	SFR	Outdoor	\$114,765	\$589,918	\$51,435	\$79,131	2.2	7.5	\$58,500	20.8	\$563
Laundry-to-Landscape System	SFR	Outdoor	\$27,858	\$143,195	\$27,108	\$334,663	1.0	0.4	\$32,400	2.7	\$1,196
Rain Barrel Rebate Program	SFR	Outdoor	\$14,477	\$74,415	\$99,737	\$299,211	0.1	0.2	\$131,000	0.8	\$8,116
SFR WBIC Rebate Program	SFR	Outdoor	\$91,243	\$469,010	\$53,839	\$103,536	1.7	4.5	\$64,350	8.9	\$725
Large Landscape WBIC Rebate Program	IRR	Outdoor	\$41,877	\$215,259	\$5,949	\$2,380	7.0	90.4	\$7,110	4.1	\$175
SFR Turf Removal Program	SFR	Outdoor	\$882,014	\$4,533,738	\$1,351,479	\$4,158,396	0.7	1.1	\$1,856,693	45.3	\$1,830
Custom Rebate	CII, MFR, IRR	Both	\$449,008	\$2,307,998	\$20,851	\$77,843	21.5	29.6	\$30,300	22.6	\$58
Behavior Based Customer Messaging Platforms	SFR, MFR	Both	\$307,070	\$2,378,839	\$145,776	\$0	2.1	-	\$159,155	52.5	\$607
High Efficiency Clothes Washer Rebate Program - CII	CII	Indoor	\$997,946	\$9,071,040	\$271,466	\$208,641	3.7	43.5	\$318,150	117.9	\$337
MFR CII Turf Removal Program	MFR, CII	Outdoor	\$51,459	\$264,509	\$67,918	\$208,979	0.8	1.3	\$93,308	2.6	\$1,576

Table 6-3 Costs and Savings of Potential Conservation Programs
Marin Municipal Water District, Sonoma-Marin Water Saving Partnership

Program (a)	Sector	Indoor/ Outdoor	Net Present Value of Benefits		Net Present Value of Cost		Benefit to Cost Ratio		Water Utility Costs 2026-2030 (b)	Water Savings in 2030 (AFY)	Water Utility Cost of Water Saved (\$/AF)
			Water Utility	Customers	Water Utility	Customers	Water Utility	Customers			
Incentivize Irrigation Equipment Upgrades - SFR											
SFR Irrigation Nozzle Replacement	SFR	Outdoor	\$252,505	\$1,297,930	\$57,305	\$57,305	4.4	22.6	\$68,493	24.6	\$279
SFR Irrigation System Flow Sensor Rebate	SFR	Outdoor	\$170,441	\$876,103	\$261,310	\$452,479	0.7	1.9	\$312,327	16.6	\$1,885
Irrigation Improvement Equipment Program											
Large Landscape Irrigation System Flow Sensor Rebate	IRR	Outdoor	\$12,579	\$64,659	\$6,429	\$11,132	2.0	5.8	\$7,684	1.2	\$628
Large Landscape Irrigation Nozzle Replacement	IRR	Outdoor	\$12,424	\$63,861	\$2,820	\$2,820	4.4	22.6	\$3,370	1.2	\$279
Water Budgeting/Monitoring for Large Landscape Accounts	IRR	Outdoor	\$1,103,401	\$5,671,715	\$1,497,931	\$0	0.7	-	\$1,635,400	188.5	\$1,735

Abbreviations

AFY = acre-feet per year	MFR = multi-family residential
AMI = Advanced Metering Infrastructure	SFR = Single-family residential
CII = Commercial, Industrial, and Institutional	sq ft = square feet
HECW = High-Efficiency Clothes Washer	WBIC – Weather-Based Irrigation Controller
HET = High-Efficiency Toilet	\$/AF = dollars per acre-foot
IRR = Irrigation	

Notes

- (a) Estimated water savings, benefits, and costs are calculated using the AWE model. Program savings, cost, and implementation rate assumptions used are presented in Appendix B. Utility benefit (i.e., avoided cost of water) is assumed to be the cost of purchasing wholesale water from Sonoma Water. Customer benefit is assumed to be the variable cost of purchasing water from the utility (i.e., variable customer water rates).
- (b) For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2026 through 2030.

Table 6-4 Comparison of Program Scenarios – Costs and Savings
Marin Municipal Water District, Sonoma-Marin Water Saving Partnership

Scenario (a)	Present Value of Benefits		Present Value of Cost		Benefit to Cost Ratio		Water Savings in 2030 (AFY)	Cumulative Active Water Savings (AF)					Water Utility Cost of Water Saved (\$/AF) (b)
	Water Utility	Customers	Water Utility	Customers	Water Utility	Customers		2025	2030	2035	2040	2045	
(A) Baseline	\$ 3,954,326	\$ 27,098,342	\$ 4,163,597	\$ 8,331,151	0.9	3.3	427	1,548	2,658	3,178	3,648	3,975	\$1,300
(B) Highly-Ranked Local Programs	\$ 6,677,625	\$ 45,109,711	\$ 6,382,337	\$ 8,917,836	1.0	5.1	819	3,207	5,003	5,640	6,087	6,426	\$1,190
(C) Highly-Ranked Outdoor Programs	\$ 2,902,227	\$ 17,555,308	\$ 4,082,129	\$ 6,470,556	0.7	2.7	363	1,497	2,056	2,315	2,608	2,820	\$1,752
(D) Highly-Ranked CII Programs	\$ 3,179,735	\$ 18,981,758	\$ 4,148,682	\$ 6,541,812	0.8	2.9	390	1,577	2,272	2,585	2,878	3,090	\$1,625

Abbreviations

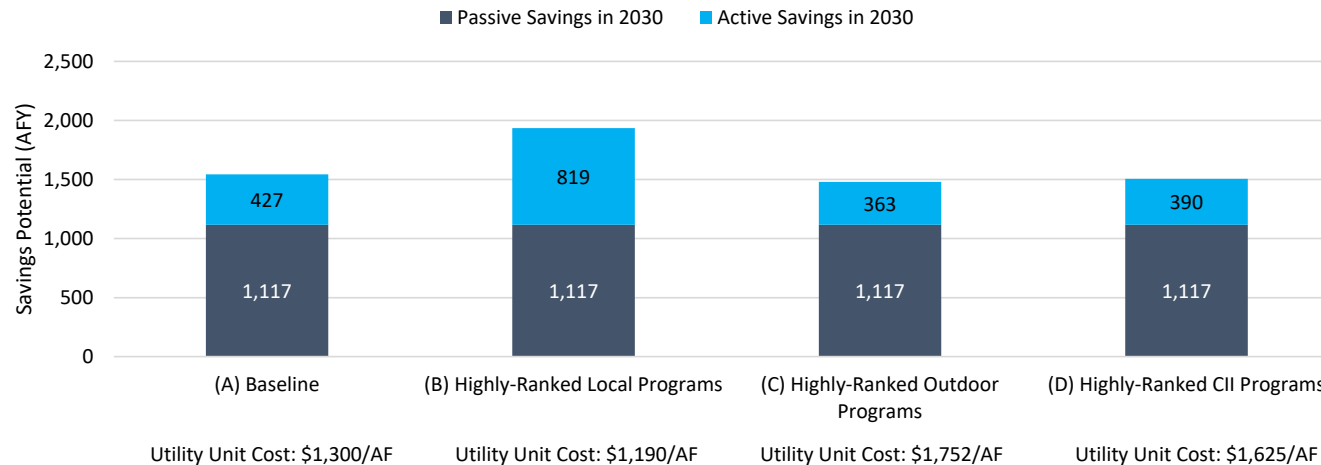
AF = acre-feet

\$/AF = dollars per acre-foot

Notes

- (a) For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2026 through 2030. Cumulative water savings achieved beyond 2030 reflect the ongoing benefit of program implementation.
- (b) The water utility cost is based on the cumulative savings achieved through 2050 cumulative water savings.

Comparison of Program Scenarios - Savings in 2030



7 CONCLUSIONS

Although there have been no updates to the UWMP regulations since 2020, the MCCWL framework and related regulations will influence the 2025 UWMPs, as they will inform the water demand and conservation planning components. This project forecasted water demand through 2050 in accordance with CWC requirements and evaluated both historical and anticipated implementation of conservation programs.

7.1 Historical, Current, and Projected Water Demand

Water demand projections are developed consistent with CWC § 10631(d)(4)(A), which requires that “Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.” The assumptions used as the bases for demand projections were developed in close coordination with the District and reflect a land-use based approach consistent with ABAG and MTC’s Plan Bay Area 2050. It should be noted that all demand and conservation projections have limitations and should be considered estimates that require revisiting as factors that affect demands arise, such as economic or population shifts, extreme hydrological conditions, etc.

The methodology used to develop demand projections herein is also consistent with the CWC §10635(b)(4), requirement to consider climate change on projected demands.⁷ The District’s per account water use declined significantly over the past 15 years as a result of the District’s conservation efforts and showed significant response to key events such as the 2014-2017 drought, the 2021-2023 drought, and the COVID-19 pandemic. The demand factors evaluated herein are based on water use during the 2017-2019 period, which assume a rebound in demand following the recent drought and represent a higher level of demand compared to current levels. Thus, the periods used to develop the demand projections reflect conditions representative of the hotter, drier weather expected as a result of climate change.

Although MCCWL Objective water use standards are expected to become more stringent over time, the District is projected to remain in compliance with its Objectives through 2040 based on forecasted population and baseline water use, prior to accounting for active conservation savings.

7.2 Conservation Measures Participation, Savings, and Update

Participation data indicate that several of the District’s conservation programs, particularly the AMI Leak Notification, Water Use Surveys/Audits, Residential HECW Rebate, WBIC Rebate, toilet, and turf replacement programs have been widely adopted and/or successful in achieving water savings between 2010 and 2024. Most programs have a lower adoption rate over the recent five years compared to historical rates, with higher popularity observed during drought periods.

⁷ CWC §10635(b)(4) requires that suppliers consider plausible changes on projected supplies and demands under climate change conditions specific to their five-year drought risk assessments. Section 4.5 of the draft 2020 UWMP Guidebook more generally recommends that consideration of climate change be incorporated into all demand projections.

A benefit-cost analysis of future program scenarios shows that all options yield a benefit-to-cost ratio at or greater than one, meaning program implementation is more cost-effective than purchasing additional water supplies from Sonoma Water. Because the District already implements an extensive set of mature and cost-effective programs, new measures generally target remaining, harder-to-reach savings at a higher incremental cost. The preferred program portfolio achieves an estimated benefit-to-cost ratio of 1.0, while its existing programs are at 0.9.

8 REFERENCES

- AWE, 2021. "Water Conservation Tracking Tool - Version 4.0." Alliance for Water Efficiency (AWE), 2021. <https://www.allianceforwaterefficiency.org/resources/tools/water-conservation-tracking-tool>.
- ABAG, 2021. *Plan Bay Area 2050*. Association of Bay Area Governments and Metropolitan Transportation Commission, dated October 2021.
- EKI, 2020. 2020 Water Demand Analysis and Water Conservation Measure Update, Prepared for Marin Municipal Water District. EKI Environment & Water, Inc., December 2020.
- EKI, 2024. *Updated 2020 Urban Water Management Plan for Marin Municipal Water District*. EKI Environment & Water, Inc., dated January 2024.
- MMWD, 2024. 2024 5-Year Water Efficiency Master Plan. Marin Municipal Water District, dated July 2024.
- MMWD, 2025. Information on the historical population estimates for the Marin Municipal Water District's (MMWD's) service area, provided by MMWD staff on 25 February 2025.
- PG&E, 2024. Pacific Gas and Electric (PG&E) Electric Rate Advisory, effective 1 March 2024. Pacific Gas and Electric, 2024.
- U.S. Census Bureau, 2025. Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics, 2010-2022. United States Census Bureau, accessed 10 April 2025.

APPENDIX A

Methodology for Estimating Indoor and Outdoor Water Use

Methodology for Estimating Indoor and Outdoor Water Use

This appendix documents the methodology used in Section 3.3 of the *2025 Water Demand and Conservation Measure Update* for the nine participating members of the Sonoma-Marín Saving Water Partnership (Water Contractors) prepared by EKI Environment & Water (EKI).

For customer accounts without dedicated irrigation meters, the amount of water used indoors versus outdoors is not directly measured and must be estimated. Traditionally, indoor and outdoor water use has been estimated using the “minimum winter month” method, which assumes that water use during the lowest-demand winter month is entirely attributable to indoor consumption. However, winter irrigation is common in California and this assumption tends to overestimate indoor water use.

EKI has developed the method below to estimate water use for meters with mixed indoor and outdoor water use (i.e. mixed-use meters, or MUMs) using an annual irrigation scaling factor developed based on data collected from dedicated irrigation meters. This method is consistent with the “Seasonal Adjustment Method” utilized in the Department of Water Resources’ residential indoor water use study to inform water use efficiency standards as part of the *Making Conservation a California Way of Life* Legislation (DWR, 2021).

1 DATA SOURCES

The analysis is based on potable water consumption data covering calendar year 2024. While multi-year water consumption data are available, indoor and outdoor use estimates were derived from the most recent complete calendar year (2024) to reflect current usage and seasonal patterns.

The dataset was parsed for the analysis herein and includes the following fields:

- **Year and Month** – Derived from service period or billing date.
- **Sector Group** – Consolidated customer sectors, including Single Family, Multi-family, Commercial/Industrial/Institutional (CII Total), and Irrigation.
- **Consumption** – Monthly water use converted to acre-feet.
- **Water Type** – Only potable water use was included in the analysis.

Potable irrigation accounts were used to infer the seasonal profile of outdoor water use. Estimates of indoor and outdoor use were produced for sector groups where both types of use are present (e.g., Single Family, Multi-family, CII Total).

2 METHODOLOGY

This section describes the method used to estimate the indoor and outdoor components of total annual water use for each sector group.

2.1 Step 1: Identify Analysis Year

The most recent year with complete monthly data (2024) was selected to represent current conditions and ensure seasonal variation is captured accurately.

2.2 Step 2: Calculate Seasonal Scaling Factor

Potable dedicated irrigation meters (DIMs) were assumed to represent purely outdoor water use. Monthly water use in the most recent year (2024) was aggregated for all irrigation accounts (i.e. accounts on DIMs), and a seasonal scaling factor (SF) was calculated as:

$$\text{Scaling Factor (SF)} = \frac{\text{Max (monthly use)}}{\text{Min (monthly use)}}$$

This metric reflects the ratio between peak summer irrigation and baseline winter irrigation, which is assumed to persist year-round at a reduced level. The metric also reflects the local conditions and climatic conditions during 2024. As shown on Figure 2-1, the variations in monthly water use from DIMs generally follow a consistent pattern: highest water use in the summer months and early fall (July through September), lowest water use in the winter month and early spring (January through March).

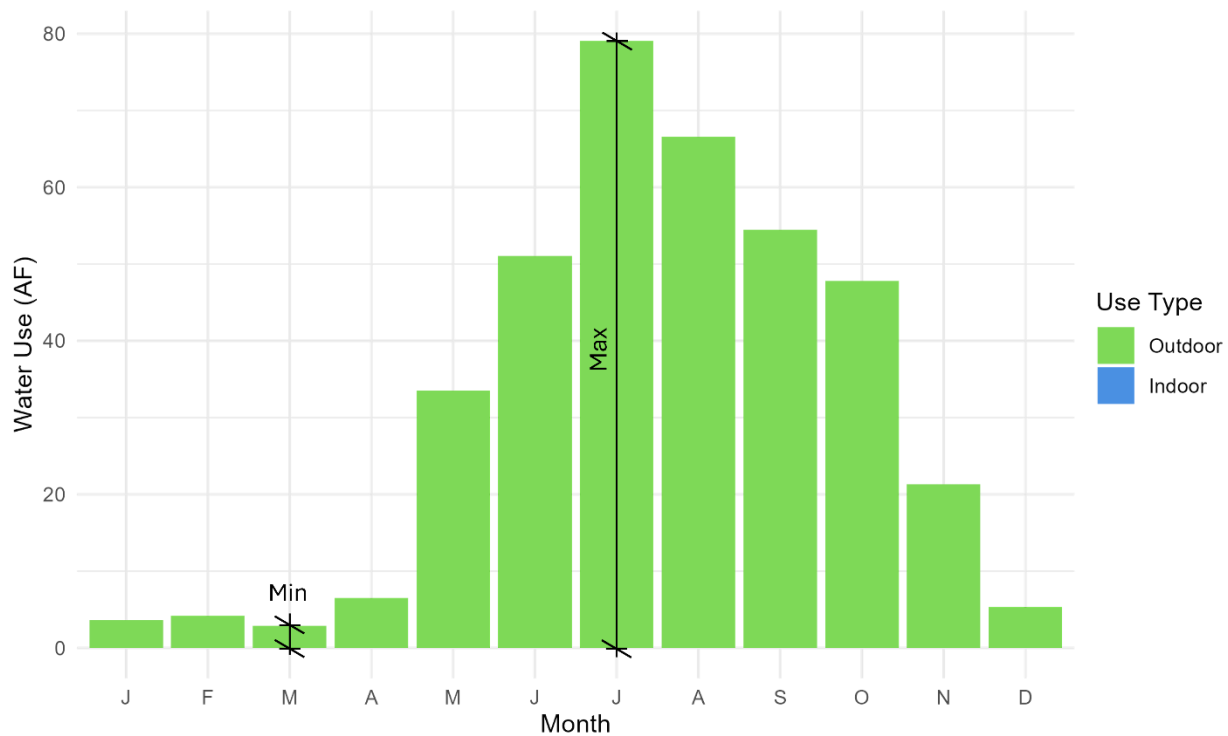


Figure 2-1 Example Irrigation Outdoor Use by DIMs Used to Calculate Scaling Factor

2.3 Step 3: Filter Target Sector Groups

The analysis focuses on three sector groups on MUMs expected to include both indoor and outdoor use:

- Single Family
- Multi-family
- CII Total

Only potable water demand from MUMs is considered.

2.4 Step 4: Extract Seasonal and Annual Demand

Monthly potable water demand by MUMs was aggregated by sector group. The representative low-irrigation month (winter) is selected by finding the minimum water use across the months of January, February, and March. Similarly, the high-irrigation month (summer) is selected by finding the maximum

water use from the months of July, August, and September. Total annual demand was also computed for each sector group.

2.5 Step 5: Estimate Indoor and Outdoor Use

The SF calculated under Step 2 are used to estimate the proportion of water used for irrigation purposes by MUMs. This method assumes that indoor water use is generally consistent over the course of the year and that customers within the Water Contractor's service area experience similar irrigation patterns. This assumption tends to hold more strongly for residential customers. However, for CII customers, although some use water through MUMs for outdoor irrigation, they may also have seasonally variable indoor demands, such as cooling towers. As a result, this method may underestimate indoor use and overestimate outdoor use in service areas with significant CII cooling demands.

Figure 2-2 illustrates the annual water use pattern and the components of the equations below used to derive estimated indoor and outdoor water use for sectors with MUMs.

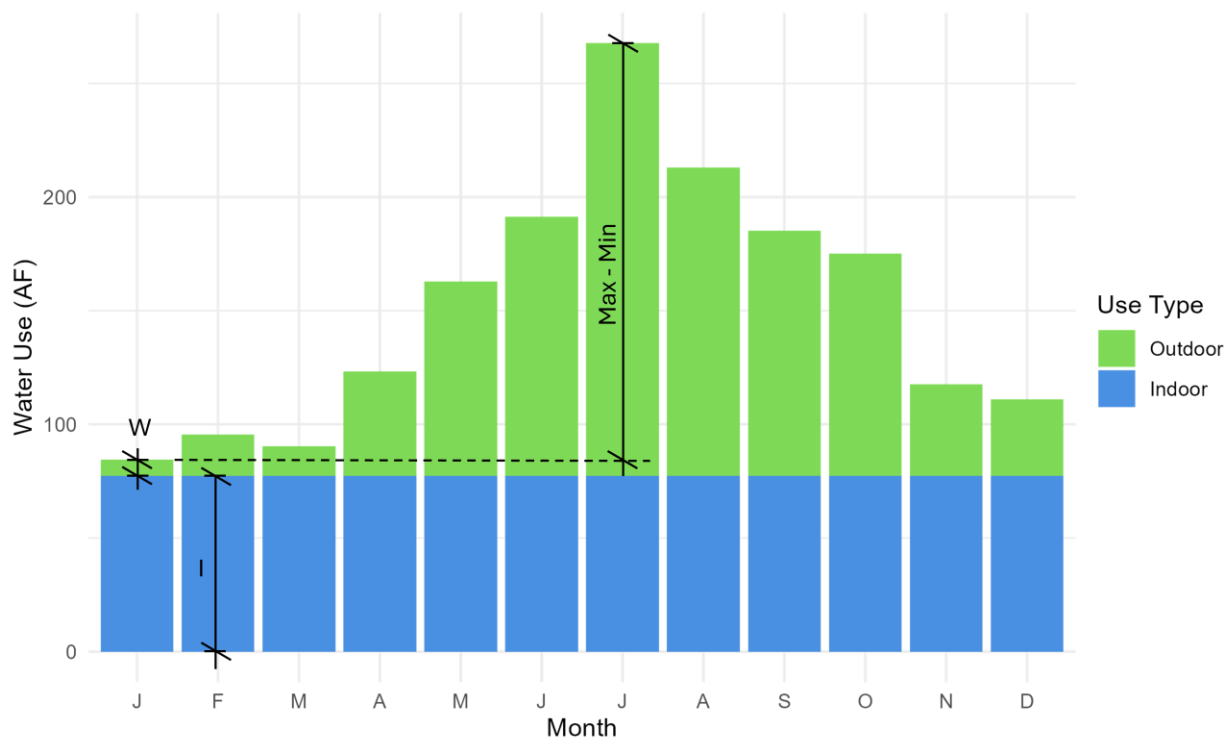


Figure 2-2 Indoor and Outdoor Separation Methodology for Water Use on MUMs

Indoor use was estimated as the month with the least water use in January, February, or March, adjusted to remove residual winter irrigation using the SF.

Winter irrigation is estimated as:

$$\begin{aligned}
 SF &= \frac{W + (Max - Min)}{W} \\
 &= 1 + \frac{Max - Min}{W} \\
 \Rightarrow W &= \frac{Max - Min}{SF - 1}
 \end{aligned}$$

Where:

- W = Outdoor winter irrigation during the lowest water use month
- Max = Max monthly use in one of July, August, or September
- Min = Min monthly use in January, February, or March
- SF = Scaling factor

Indoor monthly use is then:

$$I = \text{Min} - W$$

Indoor annual use is computed as:

$$I \times 12$$

Outdoor annual use is then the residual between total annual use and indoor annual use:

$$\text{Outdoor Annual Use} = \text{Total Annual Use} - \text{Indoor Annual Use}$$

3 ASSUMPTIONS AND LIMITATIONS

- DIMs reflect purely outdoor use, with consistent year-round patterns across groups.
- Low point of outdoor irrigation happens in one of January, February, or March; similarly peak summer irrigation happens in one of July, August, or September.
- Indoor water use is assumed to be consistent throughout the year.
- Customers within each sector group are assumed to exhibit similar usage patterns.
- The scaling factor derived from DIMs is representative of outdoor demand across all MUMs, which is a stronger assumption for residential customers but less so for CII customers due to seasonal cooling demands.

4 REFERENCES

DWR, 2021. *Recommendations for urban water use efficiency standards, variances, performance measures, and annual water use reporting* (Report No. WUES-DWR-2021-01A). California Department of Water Resources. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/Performance-Measures/UWUE_STD_VAR_PM_REPORT_WUES-DWR-2021-01A_COMPLETE.pdf

APPENDIX B

Conservation Program Assumptions

Table B-1 Conservation Program Savings Assumptions
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Savings Assumption (gpd/unit)	Life of Savings (Years)	Decay Rate (%/Yr)	Free Riders (% activity)	Source(s)
AMI Leak Notifications Program	Notification	76.7	1	0%	0%	Consistent with WEMP assumptions. Program lifetime updated by District staff.
Flume Direct Distribution	Household	25.8	10	0%	0%	Consistent with WEMP assumptions.
SFR Water Use Surveys/Audits Program	Household	17.2	5	20%	0%	Per detailed conservation savings analysis performed for 2020 Demand/Cons Report and consistent with WEMP assumptions.
Water Use Surveys/Audits Program (Excluding SFR Participants)	Site	256	5	20%	0%	Consistent with WEMP assumptions.
CII Water Use Evaluation Program	Site	256	5	20%	0%	Consistent with WEMP assumptions.
HET Rebate Program	Toilet	9.4	15	0%	23%	(a)
HET Direct Install Program	Toilet	9.4	15	0%	0%	(a)
Residential HECW Rebate Program	Washer	19.3	15	0%	0%	AWE Tool Conservation Program Library.
Hot Water Recirculating System	Household	5.4	10	0%	0%	Calculated based on the hot water recirculation system savings and system useful life in References 1 and 2.
Pool Cover Rebate Program	Site	41.2	5	0%	0%	Consistent with WEMP assumptions.
Laundry-to-Landscape System	Household	12.1	10	0%	0%	Consistent with WEMP assumptions.
Rain Barrel Rebate Program	Household	5.5	20	0%	0%	Consistent with WEMP per gallon assumptions and an average of 1,000 gallons per household.
SFR WBIC Rebate Program	Controller	16.0	10	0%	0%	Per detailed conservation savings analysis performed for 2020 Demand/Cons Report and consistent with WEMP assumptions.
Large Landscape WBIC Rebate Program	Controller	727	10	0%	0%	AWE Tool Conservation Program Library.
SFR Turf Removal Program	Square Feet	0.1	23	0%	0%	Consistent with WEMP assumptions.
Custom Rebate	GPD Reduced	1	25	0%	0%	Inputs based on per gpd reduced
Behavior Based Customer Messaging Platforms	Household	10.3	1	0%	0%	AWE Tool Conservation Program Library for Home Water Report.
High Efficiency Clothes Washer Rebate Program - CII	Washer	115.8	8	0%	0%	AWE Tool Conservation Program Library for AWE MFR Shared and CII Washer Rebate (WF <=4).
MFR CII Turf Removal Program	Square Feet	0.1	23	0%	0%	Consistent with WEMP assumptions.
<i>Incentivize Irrigation Equipment Upgrades - SFR (c)</i>						
SFR Irrigation Nozzle Replacement	Sprinkler Head	1.6	10	0%	0%	AWE Tool Conservation Program Library for SFR Irrigation Nozzle Replacement
SFR Irrigation System Flow Sensor Rebate	Controller	9.0	10	0%	0%	AWE Tool Conservation Program Library for SFR Irrigation System Flow Sensor Rebate

Table B-1 Conservation Program Savings Assumptions
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Savings Assumption (gpd/unit)	Life of Savings (Years)	Decay Rate (%/Yr)	Free Riders (% activity)	Source(s)
<i>Irrigation Improvement Equipment Program (c)</i>						
Large Landscape Irrigation Nozzle Replacement	Sprinkler Head	1.6	10	0%	0%	AWE Tool Conservation Program Library for Large Landscape Irrigation Nozzle Replacement
Large Landscape Irrigation System Flow Sensor Rebate	Controller	27.0	10	0%	0%	AWE Tool Conservation Program Library for Large Landscape Irrigation System Flow Sensor Rebate.
Water Budgeting/Monitoring for Large Landscape Accounts	Site	990	1	0%	0%	Consistent with WEMP assumptions.

Abbreviations

AMI = advanced metering infrastructure	HET = high-efficiency toilet
AWE = Alliance for Water Efficiency Water Conservation	HECW = high-efficiency clothes washer
CII = commercial, industrial, and institutional	SFR = single-family residential
gpd = gallons per day	WBIC = weather-based irrigation controller
gpf = gallons per flush	WEMP = Water Efficiency Master Plan

Notes

- (a) Calculated based on replacing 1.6 gallon per flush (gpf) toilets with 1.28 to 0.8 gpf toilets, which is lower compared to the default in the AWE Tool Conservation Program Library and reflects the typical pre-retrofit fixture stock within the Marin Municipal Water District service area.
- (b) Irrigation System Equipment programs are modeled as a combination of irrigation nozzle and flow sensor replacements.

References

1. ORNL, 2002. A case study of five homes in Palo Alto, California: Potential for savings using on-demand hot-water recirculation systems (ORNL/TM-2002/245). Oak Ridge National Library, 2002.
2. USDOE, 2001. Pump lifecycle costs: A Guide to LLC Analysis for Pumping Systems. U.S. Department of Energy, January 2001.
3. AWE, 2021. Water Conservation Tracking Tool. Version 4.0. Alliance for Water Efficiency, 2021.
4. EKI, 2020. 2020 Water Demand Analysis and Water Conservation Measure Update Marin Municipal Water District. EKI Environment & Water, Inc., December 2020.
5. Marin Municipal, 2024. 2024 5 Year Water Efficiency Master Plan. Marin Municipal Water District, July 2024.

Table B-2 Conservation Program Cost Assumptions
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Utility Cost per Unit (a)	Customer Cost per Unit	Source(s)
AMI Leak Notifications Program	Notification	\$65	\$200	Consistent with WEMP assumptions.
Flume Direct Distribution	Household	\$150	\$250	Consistent with WEMP assumptions.
SFR Water Use Surveys/Audits Program	Household	\$430	\$0	Consistent with WEMP assumptions.
Water Use Surveys/Audits Program (Excluding SFR Participants)	Site	\$2,000	\$2,500	Consistent with WEMP assumptions.
CII Water Use Evaluation Program	Site	\$2,000	\$2,500	Consistent with WEMP assumptions.
HET Rebate Program	Toilet	\$195	\$200	Utility cost from AWE Tool Conservation Program Library. Assumes no customer cost.
HET Direct Install Program	Toilet	\$455	\$0	Utility cost from AWE Tool Conservation Program Library. Assumes no customer cost.
Residential HECW Rebate Program	Washer	\$195	\$750	Utility cost based on Marin Municipal's rebate amount. Customer cost based on cost of a low-end ENERGY STAR residential washer model.
Hot Water Recirculating System	Household	\$65	\$750	Utility cost based on Marin Municipal's rebate amount. Assumes a total cost of \$800 for installation.
Pool Cover Rebate Program	Household	\$130	\$200	Consistent with WEMP assumptions.
Laundry-to-Landscape System	Household	\$162	\$2,000	Consistent with WEMP assumptions.
Rain Barrel Rebate Program	Household	\$1,000	\$3,000	Consistent with WEMP per gallon assumptions and an average of 1,000 gallons per household.
SFR WBIC Rebate Program	Controller	\$130	\$250	Consistent with WEMP assumptions.
Large Landscape WBIC Rebate Program	Controller	\$1,422	\$569	Consistent with WEMP assumptions.
SFR Turf Removal Program	Square Feet	\$3.9	\$12	Consistent with WEMP assumptions.
Custom Rebate	GPD Reduced	\$1.5	\$5.6	(b)
Behavior Based Customer Messaging Platforms	Household	\$7	\$0	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Assumes no cost to customers.
High Efficiency Clothes Washer Rebate Program - CII	Washer	\$350	\$269	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Customer cost rebate based on the mean of rebate values listed for eight agencies in the Sonoma-Marine Water Saving Partnership.
MFR CII Turf Removal Program	Square Feet	\$3.9	\$12	Consistent with WEMP assumptions.
<i>Incentivize Irrigation Equipment Upgrades - SFR (c)</i>				

Table B-2 Conservation Program Cost Assumptions
Marin Municipal Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Utility Cost per Unit (a)	Customer Cost per Unit	Source(s)
SFR Irrigation Nozzle Replacement	Sprinkler Head	\$5	\$5	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Assumes a total cost of \$10 per nozzle.
SFR Irrigation System Flow Sensor Rebate	Controller	\$190	\$330	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Customer cost based on cost of a mid-range FLOMEC QS100 ultrasonic irrigation flow sensor.
<i>Irrigation Improvement Equipment Program (c)</i>				
Large Landscape Irrigation Nozzle Replacement	Sprinkler Head	\$5	\$5	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Assumes a total cost of \$10 per nozzle.
Large Landscape Irrigation System Flow Sensor Rebate	Controller	\$190	\$330	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Customer cost based on cost of a mid-range FLOMEC QS100 ultrasonic irrigation flow sensor.
Water Budgeting/Monitoring for Large Landscape Accounts	Site	\$1,924	\$0	Consistent with WEMP assumptions.

Abbreviations

AMI = advanced metering infrastructure

AWE = Alliance for Water Efficiency Water Conservation Tracking Tool

CII = commercial, industrial, and institutional

gpd = gallons per day

gpf = gallons per flush

HET = high-efficiency toilet

HECW = high-efficiency clothes washer

SFR = single-family residential

WBIC = weather-based irrigation controller

WEMP = Water Efficiency Master Plan

Notes

(a) Utility cost for rebate programs includes a 30% administrative cost in addition to the District's rebate amount.

(b) Utility cost for each gpd reduced calculated from one gpd multiplied by the City's rebate amount at \$3 per 748 gallons reduced per year and 365 days per year. Customer cost assumed to be five times utility costs.

(c) Irrigation System Equipment programs are modeled as a combination of irrigation nozzle and flow sensor replacements.

References

1. AWE, 2021. Water Conservation Tracking Tool. Version 4.0. Alliance for Water Efficiency, 2021.

2. Marin Municipal, 2024. 2024 5 Year Water Efficiency Master Plan. Marin Municipal Water District, July 2024.

Table B-3 Conservation Program Implementation Rate Assumptions

Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Agency Program Name	Units	Implementation Rate	Unit	Source(s)
AMI Leak Notifications Program	Notification	1,250	Notification / Year	Consistent with WEMP assumptions.
Flume Direct Distribution	Household	500	Household / Year	Consistent with WEMP assumptions.
SFR Water Use Surveys/Audits Program	Household	400	Household / Year	Consistent with WEMP assumptions.
Water Use Surveys/Audits Program (Excluding SFR Participants)	Site	75	Site / Year	Consistent with WEMP assumptions.
CII Water Use Evaluation Program	Site	25	Site / Year	Consistent with WEMP assumptions.
HET Rebate Program	Toilet	41	Toilet / Year	Based on past program participation rates from 2020–2024.
HET Direct Install Program	Toilet	78	Toilet / Year	Based on past program participation rates from 2013-2015 as no participation was reported for 2020-2024.
Residential HECW Rebate Program	Washer	119	Washer / Year	Based on past program participation rates from 2020–2024.
Hot Water Recirculating System	Household	39	Household / Year	Based on past program participation rates from 2020–2024.
Pool Cover Rebate Program	Household	90	Household / Year	Consistent with WEMP assumptions.
Laundry-to-Landscape System	Household	40	Household / Year	Consistent with WEMP assumptions.
Rain Barrel Rebate Program	Household	26	Household / Year	Based on past program participation rates from 2020–2024.

Table B-3 Conservation Program Implementation Rate Assumptions

Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Agency Program Name	Units	Implementation Rate	Unit	Source(s)
SFR WBIC Rebate Program	Controller	99	Controller / Year	Consistent with WEMP assumptions.
Large Landscape WBIC Rebate Program	Controller	1	Controller / Year	Consistent with WEMP assumptions.
SFR Turf Removal Program	Square Feet	95,215	Square Feet / Year	Consistent with WEMP assumptions.
Custom Rebate	GPD Reduced	4,040	GPD Reduced / Year	Based on 2010-2024 program participation from the City of Santa Rosa.
Behavior Based Customer Messaging Platforms	Household	4,547	Household / Year	Assume 8% of residential customers will participate.
High Efficiency Clothes Washer Rebate Program - CII	Washer	182	Washer / Year	Assume 1% of MFR customers will participate.
MFR CII Turf Removal Program	Square Feet	4,785	Square Feet / Year	Consistent with WEMP assumptions.
<i>Incentivize Irrigation Equipment Upgrades - SFR</i>				
SFR Irrigation Nozzle Replacement	Sprinkler Head	2,740	Sprinkler Head / Year	Assume 1% of SFR customers will participate. Assume 5 sprinklers per account.
SFR Irrigation System Flow Sensor Rebate	Controller	329	Controller / Year	Assume 0.6% of SFR customers will participate.
<i>Irrigation Improvement Equipment Program</i>				
Large Landscape Irrigation Nozzle Replacement	Sprinkler Head	135	Sprinkler Head / Year	Assume 1% of large landscape customers will participate and 10 sprinklers per account.
Large Landscape Irrigation System Flow Sensor Rebate	Controller	8	Controller / Year	Assume 0.6% of large landscape customers will participate.

Table B-3 Conservation Program Implementation Rate Assumptions

Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Agency Program Name	Units	Implementation Rate	Unit	Source(s)
Water Budgeting/Monitoring for Large Landscape Accounts	Site	170	Site / Year	Consistent with WEMP assumptions.

Abbreviations

AMI = advanced metering infrastructure

AWE = Alliance for Water Efficiency Water Conservation Tracking Tool

CII = commercial, industrial, and institutional

HET = high-efficiency toilet

HECW = high-efficiency clothes washer

SFR = single-family residential

WBIC = weather-based irrigation controller

WEMP = Water Efficiency Master Plan

APPENDIX C

Prioritization and Screening of Future Water Conservation Measures

Table C-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
AGENCY ACTIONS AND WATER RATES					
Increase Enforcement of Customer Pressure Reducing Valve (PRV) Requirement	1.5	1.6	25%	25%	✗
Increase Enforcement of Indoor Fixture Retrofit at Time of Sale	1.7	2.4	33%	56%	✗
Increase Enforcement of State Water Waste Regulations	2.0	2.6	38%	63%	✗
Rate Structure Evaluation	2.0	2.0	25%	50%	✗
Regional UHET and/or Urinal Bulk Purchase Program	1.3	1.	11%	0%	✗
Water Budgeting/Monitoring for Large Landscape Accounts	1.8	2.9	33%	67%	✗
Establish Separate Pricing Structure for Irrigation Accounts	1.4	2.7	13%	50%	✗
Implementation or Modification of Tiered Water Rates (Conservation Pricing)	2.4	3.3	38%	75%	✗
Water Budget Based Billing for All Customers	1.3	1.9	11%	33%	✗
Water Budget Based Billing for Only Irrigation Customers	1.7	2.9	22%	56%	✗
Install AMI for Existing Accounts	2.6	4.3	25%	88%	✗
Install AMI for High Water Users and Large Landscape Accounts	2.8	4.4	50%	88%	✗
Install AMI in New Development	2.4	4.3	38%	88%	✗
End Point Leak Detection and Flow Monitoring	2.1	3.0	25%	50%	✗
CalWEP District Distribution Program	1.8	2.3	33%	33%	✗
Behavior Based Customer Messaging Platforms	1.9	2.9	25%	63%	✗
Average by Program Type	1.9	2.8			
PUBLIC OUTREACH AND EDUCATION					
Water Use Surveys/Audits - CII	2.3	2.9	44%	56%	✓
Water Use Surveys/Audits - MFR	2.7	3.1	67%	67%	✓
Water Use Surveys/Audits - SFR	2.6	3.0	67%	67%	✗
Garden Sense Consultation	3.1	2.3	78%	56%	✓
Educational Workshops	3.3	2.7	78%	56%	✓

Table C-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
Garden Tour	3.2	1.6	78%	11%	✓
SFR Home Water Report	2.0	2.8	44%	67%	✗
Promote Green Building and Certification	2.4	1.3	56%	11%	✗
Provide Support with Smart Irrigation Controller Setup	2.7	2.6	67%	56%	✗
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	3.7	3.4	89%	89%	✓
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	4.4	4.1	100%	89%	✓
Promote QWEL Training (Qualified Water efficient Landscaper)	3.9	2.6	89%	33%	✓
School Education Programs	4.0	2.6	100%	67%	✓
Do-It-Yourself Home Energy and Water Savings Toolkit	3.2	2.2	78%	44%	✓
Average by Program Type	3.1	2.7			
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS					
High Efficiency Faucet Aerator / Showerhead Giveaway - CII Customers	2.4	3.1	44%	56%	✗
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	2.7	4.0	56%	89%	✗
Toilet Flapper Giveaway - Residential and CII	2.2	3.0	44%	67%	✗
UHET Direct Installation - Residential and CII	1.7	2.2	33%	33%	✗
Urinal Direct Installation - CII	1.7	2.0	44%	33%	✗
Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates	1.7	1.8	33%	33%	✗
HET (<1.28 gal/flush) Replacement Rebates	2.3	2.6	44%	44%	✗
High Efficiency Urinal (<0.25 gal/flush) Replacement Rebates - CII	2.1	2.6	44%	44%	✗
Plumber Initiated UHET and / or HEU Retrofit Program	1.7	2.0	22%	22%	✗
Direct Install of Efficient Indoor Fixtures - Commercial and Industrial	1.9	2.4	33%	44%	✗
Direct Install of Efficient Indoor Fixtures - Government Buildings	2.1	2.4	44%	44%	✗
Direct Install of Efficient Indoor Fixtures - Low Income Residential	2.3	2.9	44%	56%	✗
Direct Install of Efficient Indoor Fixtures - Residential	2.3	2.7	44%	44%	✗

Table C-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
High Efficiency Clothes Washer Install - Low Income Residential Customers	1.6	1.2	22%	11%	✗
High Efficiency Clothes Washer Rebate - Residential	3.1	3.1	67%	67%	✗
High Efficiency Clothes Washer Rebate Program - CII	2.0	2.8	44%	78%	✗
Efficient Dishwasher Rebates	1.9	1.9	44%	44%	✗
Indoor Fixture Program For Hotels & Motels	2.0	2.8	44%	67%	✗
Indoor Fixture Program For Schools	2.1	2.0	44%	33%	✗
Water Savings Incentive Program for CII	1.8	2.9	33%	78%	✗
Nonresidential Incentive for Self-closing or Metering Faucets	1.9	2.6	22%	44%	✗
Laminar Flow Restrictor Rebate for Health Care Related Facilities	1.9	2.8	22%	67%	✗
Autoclave (Steam-Sterilizer) Retrofit Rebates	1.3	1.4	11%	22%	✗
Air Cooled Ice Machine Rebates	1.7	1.9	22%	44%	✗
Connectionless Food Steamer Rebates	2.0	1.9	33%	44%	✗
Commercial Kitchen High Efficiency Dishwasher Rebate	1.3	1.8	11%	33%	✗
Dipper Well Rebates	2.2	2.3	44%	67%	✗
Hot Water on Demand Pump System Rebate/ Hot Water Recirculating System	1.7	2.2	33%	56%	✗
Dry Vacuum Pumps	1.3	1.9	11%	44%	✗
Ozone Laundry Washer Rebate - CII	1.6	2.1	22%	56%	✗
Plumbing Flow Control Valve - CII (Faucets and Showerheads)	1.9	2.7	22%	56%	✗
Incentivize Cooling Tower Upgrades	1.3	2.1	11%	56%	✗
Rebates for Conductivity Controllers on Cooling Towers	1.6	2.1	22%	56%	✗
Sustained Reduction, or rebates for any CII project which demonstrates water savings	1.6	2.0	22%	33%	✗
Landscape Conversion or Turf Removal - MFR and CII	3.2	4.7	67%	100%	✗
Landscape Conversion or Turf Removal - SFR	3.3	4.8	67%	100%	✗
Mulch Rebate	2.4	3.4	44%	67%	✗

Table C-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
Incentivize Irrigation Equipment Upgrades - SFR	2.0	3.4	33%	67%	✗
Commercial Landscape Irrigation Improvement Program (CLIP) Rebates	2.4	3.5	50%	75%	✗
Rotating Sprinkler Nozzle Giveaway	2.4	2.8	56%	56%	✗
Nozzle Replacement Irrigation - Residential	1.9	2.9	33%	44%	✗
Nozzle Replacement Irrigation CII - Large Landscape	1.9	3.0	33%	56%	✗
In-Stem Flow Regulators	1.9	2.1	33%	33%	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - Large Landscape	1.9	2.3	44%	44%	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - SFR	1.9	2.7	44%	44%	✗
Soil Moisture Sensor Giveaway	2.0	2.1	44%	22%	✗
Soil Moisture Sensor Rebate	1.9	2.0	44%	22%	✗
Pilot Spring Irrigation Repairs Rebate	2.0	2.2	44%	33%	✗
Rain Barrel Rebate	2.2	3.1	44%	67%	✗
Rain Barrel Rebate - MFR & Large Landscapes	2.0	2.9	33%	56%	✗
Incentivize Gray Water Retrofit for Existing SFR Customers	1.9	2.7	22%	56%	✗
Incentivize Gray Water Systems for New CII Development	1.8	1.9	22%	33%	✗
Incentivize Submetering for Existing Customers - MFR, CII	1.7	2.4	33%	56%	✗
Incentivize Submetering of Cooling Towers for Existing Customers	1.1	1.9	0%	33%	✗
Flow Sensor Rebate Irrigation System	1.7	2.3	33%	44%	✗
SFR Wireless Flow Monitor	1.7	2.0	33%	33%	✗
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	1.4	1.7	11%	22%	✗
Pool Removal Rebates	1.8	2.6	22%	44%	✗
Swimming Pool and Hot Tub Cover Rebates	1.6	2.7	33%	56%	✗
Tiered Water Rate Exemption Assistance Program	1.0	1.4	0%	11%	✗
Average by Program Type	1.9	2.5			

Table C-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
POLICIES AND REGULATIONS					
Demand Offset/Water Neutral Policy for Large New Developments	2.7	3.7	44%	78%	✗
Prohibit Once through Cooling Systems	2.7	3.9	44%	78%	✗
Require <0.25 gal/flush Urinals in New Development	1.6	1.9	22%	33%	✗
Require <1.0 gal/flush Toilets in New Development	2.1	3.1	33%	56%	✗
Require Cooling Tower Retrofits	2.2	2.6	44%	56%	✗
Require High Efficiency Clothes Washers in New Development	1.7	2.6	22%	44%	✗
Require Hot Water on Demand / Structured Plumbing in New Residential Development	2.0	2.4	44%	56%	✗
Require Irrigation Designers / Installers be Certified (QWEL)	1.6	1.9	22%	33%	✗
Require On-Site Water Reuse Systems (Grey Water or Black Water) for Large CII Developments	1.8	1.9	33%	33%	✗
Require Plumbing for Gray Water in New SFR Development	2.2	1.9	33%	33%	✗
Require Plumbing for Recycled Water in New CII Development	1.6	3.0	11%	56%	✗
Require Plumbing for Recycled Water in New MFR Development	1.8	2.3	33%	33%	✗
Require Rain Barrels in New Development	1.8	2.0	33%	44%	✗
Require Submetering by Unit for Existing Commercial Customers	1.8	2.1	33%	44%	✗
Require Submetering by Unit for New Commercial Developments	1.6	2.8	22%	67%	✗
Require Submetering for New MFR Developments	2.1	2.4	44%	44%	✗
Require Submetering for New Mobile Home Park Developments	2.2	2.1	33%	44%	✗
Require Submetering of Cooling Towers for Existing Customers	1.8	2.3	22%	33%	✗
Require Submetering of Cooling Towers for New Development	1.1	2.1	0%	33%	✗
Require Submetering of Existing MFR (and Mobile Home Park) Customers	1.3	1.7	11%	22%	✗
Require Submetering of Landscaping for Existing MFR and Commercial Customers	1.3	2.0	11%	33%	✗
Require Submetering of Landscaping for New MFR and Commercial Developments	1.8	2.8	11%	44%	✗
Require Swimming Pool and Hot Tub Covers	1.6	2.4	11%	33%	✗

Table C-1 Regional Prioritization of Conservation Measures and Programs
Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
Require Water Efficiency Plan Reviews for New CII Development	1.8	2.8	22%	56%	✗
Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development	1.8	3.1	22%	56%	✗
Restrict Landscape Irrigation to Designated Days/Times	1.3	2.1	11%	33%	✗
Water Conserving Landscape and Irrigation Codes, More Stringent than MWELO	2.2	3.6	33%	67%	✗
Water Waste Ordinance	2.7	4.2	33%	78%	✗
Average by Program Type	1.9	2.6			

Abbreviations:

AMI = advanced metering infrastructure

CalWEP = California Water Efficiency Partnership

CII = commercial, industrial, institutional

COM = commercial

HEU = High-Efficiency Urinals

IRR = irrigation

MFR = multi-family residential

MWELO = Model Water Efficient Landscape Ordinance

PRV = pressure reducing valve

SFR = single-family residential

SMSWP = Sonoma-Marín Saving Water Partnership

UHET = ultra high efficiency toilet

Notes:

(a) Each Water Contractor was asked to rank each conservation program or measure in terms of priority as a regionally-administered program, and as a locally administered program, where 5 indicated highest priority and 1 indicated the lowest priority. Results are presented as an average of the responses of all nine Water Contractors.

(b) Presents the percentage of Water Contractors who indicated a priority of greater or equal to 3 for regional or local implementation.

Table C-2 Prioritization of Conservation Measures and Programs
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
AGENCY ACTIONS AND WATER RATES						
Implementation or Modification of Tiered Water Rates (Conservation Pricing)	3	All	X	X	All	No
Install AMI for Existing Accounts	5	All	X	X	All	No
Install AMI for High Water Users and Large Landscape Accounts	5	All		X	Water loss; Irrigation	No
Install AMI in New Development	5	All	X	X	Water loss; Irrigation	No
End Point Leak Detection and Flow Monitoring	5	SFR, MFR, COM	X	X	All	No
Regional UHET and/or Urinal Bulk Purchase Program	1	All	X		Toilet / Urinal	No
Increase Enforcement of Customer Pressure Reducing Valve (PRV) Requirement		All	X	X	Water loss; Irrigation	Yes, previously
Increase Enforcement of Indoor Fixture Retrofit at Time of Sale	1	All	X	X	Toilet, Urinal, Faucet, Showerhead	Yes, currently
Increase Enforcement of State Water Waste Regulations	1	All	X		Irrigation	No
Rate Structure Evaluation		All	X	X	All	No
Water Budgeting/Monitoring for Large Landscape Accounts	3	IRR	X	X	Irrigation	No
Establish Separate Pricing Structure for Irrigation Accounts		IRR		X	Irrigation	Yes, currently
Water Budget Based Billing for All Customers		All	X	X	All	No
Water Budget Based Billing for Only Irrigation Customers		CII, IRR		X	Irrigation	No
CalWEP District Distribution Program	5	All	X	X	All	Yes, currently
Behavior Based Customer Messaging Platforms	5	SFR, MFR	X	X	All	No
PUBLIC OUTREACH AND EDUCATION						
SFR Home Water Report	4	SFR	X	X	All	No
Promote QWEL Training (Qualified Water Efficient Landscaper)	5	All		X	All Outdoor	No
Water Use Surveys/Audits - CII	5	CII	X	X	All	Yes, currently
Water Use Surveys/Audits - MFR	5	MFR	X		All	Yes, currently

Table C-2 Prioritization of Conservation Measures and Programs
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Water Use Surveys/Audits - SFR	5	SFR	X	X	All	Yes, currently
Garden Tour	4	SFR		X	All Outdoor	No
Garden Sense Consultation	1	SFR		X	All Outdoor	No
Promote Green Building and Certification	2	CII	X	X	All	No
Provide Support with Smart Irrigation Controller Setup	1	All		X	Irrigation	No
Educational Workshops	1	All		X	All Outdoor	No
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	5	All	X		All Indoor	Yes, currently
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	5	All		X	Irrigation	Yes, currently
School Education Programs	4	SFR, MFR	X	X	All	Yes, currently
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS						
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	2	SFR, MFR	X		Faucet, Showerhead	Yes, currently
Toilet Flapper Giveaway - Residential and CII	3	All	X		Toilet	No
Landscape Conversion or Turf Removal - MFR and CII	5	MFR, CII		X	Irrigation	Yes, currently
UHET Direct Installation - Residential and CII	3	CII	X		Toilet	Yes, previously
Urinal Direct Installation - CII	3	CII	X		Urinal	No
Landscape Conversion or Turf Removal - SFR	5	SFR		X	Irrigation	Yes, currently
Pilot Spring Irrigation Repairs Rebate	4	MFR, COM, IRR		X	Irrigation	No
Incentivize Submetering for Existing Customers - MFR, CII	3	MFR, COM, IRR		X	All Indoor	No
Plumber Initiated UHET and / or HEU Retrofit Program	1	All	X		Toilet / Urinal	Yes, previously
Direct Install of Efficient Indoor Fixtures - Commercial and Industrial	3	CII	X		Toilet, Urinal, Faucet, Showerhead	Yes, previously
Direct Install of Efficient Indoor Fixtures - Government Buildings	3	CII	X		Toilet, Urinal, Faucet, Showerhead	Yes, previously

Table C-2 Prioritization of Conservation Measures and Programs
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Flow Sensor Rebate Irrigation System	3	SFR, MFR		X	Irrigation	No
SFR Wireless Flow Monitor	3	SFR	X	X	Water Loss	No
High Efficiency Faucet Aerator / Showerhead Giveaway - CII Customers	2	CII	X		Faucet, Showerhead	Yes, currently
High Efficiency Clothes Washer Install - Low Income Residential Customers	3	SFR, MFR	X		Clothes Washer	Yes, previously
Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates	3	SFR, MFR, CII	X		Shower	No
HET (<1.28 gal/flush) Replacement Rebates	1	SFR, MFR	X		Toilet	Yes, previously
Efficient Dishwasher Rebates	1	SFR	X		Dishwashers	No
High Efficiency Urinal (<0.25 gal/flush) Replacement Rebates - CII	1	CII	X		Urinal	Yes, previously
Direct Install of Efficient Indoor Fixtures - Low Income Residential	3	SFR, MFR	X		Toilet, Faucet, Showerhead	Yes, previously
Direct Install of Efficient Indoor Fixtures - Residential	1	SFR, MFR	X		Toilet, Faucet, Showerhead	Yes, previously
Nonresidential Incentive for Self-closing or Metering Faucets	3	CII	X		Faucet	Yes, currently
Do-It-Yourself Home Energy and Water Savings Toolkit	4	SFR	X	X	All	No
Autoclave (Steam-Sterilizer) Retrofit Rebates	3	CII	X		CII Equipment	Yes, currently
High Efficiency Clothes Washer Rebate - Residential	1	SFR, MFR	X		Clothes Washer	Yes, previously
Connectionless Food Steamer Rebates	3	CII	X		CII Equipment	Yes, currently
High Efficiency Clothes Washer Rebate Program - CII	3	CII	X		Clothes Washer	Yes, currently
Indoor Fixture Program For Hotels & Motels	4	CII	X		All Indoor	Yes, currently
Indoor Fixture Program For Schools	4	CII	X		All Indoor	Yes, currently
Dry Vacuum Pumps	3	CII	X		CII Equipment	Yes, currently
Water Savings Incentive Program for CII	4	CII	X		All Indoor	Yes, currently
Plumbing Flow Control Valve - CII (Faucets and Showerheads)	3	Commercial	X		Faucet	Yes, currently
Incentivize Cooling Tower Upgrades	3	CII	X		Cooling Towers	Yes, currently

Table C-2 Prioritization of Conservation Measures and Programs
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Rebates for Conductivity Controllers on Cooling Towers	3	CII	X		Cooling Towers	Yes, currently
Sustained Reduction, or rebates for any CII project which demonstrates water savings	5	CII	X	X	All	Yes, currently
Laminar Flow Restrictor Rebate for Health Care Related Facilities	3	Institutional	X		Faucet	Yes, currently
Air Cooled Ice Machine Rebates	3	CII	X		CII Equipment	Yes, currently
Commercial Kitchen High Efficiency Dishwasher Rebate	3	Commercial	X		Dishwashers	Yes, currently
Incentivize Irrigation Equipment Upgrades - SFR	5	SFR		X	Irrigation	No
Dipper Well Rebates	3	CII	X		CII Equipment	Yes, currently
Hot Water on Demand Pump System Rebate/ Hot Water Recirculating System	3	SFR, MFR	X		Hot Water	Yes, currently
Nozzle Replacement Irrigation - Residential	2	SFR, MFR		X	Irrigation	No
Nozzle Replacement Irrigation CII - Large Landscape	3	CII		X	Irrigation	No
Ozone Laundry Washer Rebate - CII	3	CII	X		Clothes Washer	Yes, currently
Mulch Rebate	5	SFR		X	Irrigation	Yes, previously
Commercial Landscape Irrigation Improvement Program (CLIIIP) Rebates	5	Commercial		X	Irrigation	No
Rotating Sprinkler Nozzle Giveaway	2	All		X	Irrigation	No
In-Stem Flow Regulators	3	Commercial		X	Irrigation	No
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - Large Landscape	3	MFR, CII		X	Irrigation	Yes, currently
Rain Barrel Rebate	3	SFR		X	Irrigation	Yes, currently
Rain Barrel Rebate - MFR & Large Landscapes	3	MFR, CII		X	Irrigation	Yes, currently
Incentivize Gray Water Retrofit for Existing SFR Customers	3	SFR		X	Irrigation / Gray Water	Yes, currently
Incentivize Gray Water Systems for New CII Development	1	CII		X	Irrigation / Gray Water	No
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - SFR	5	SFR		X	Irrigation	Yes, currently
Incentivize Submetering of Cooling Towers for Existing Customers	3	CII	X		Cooling Towers	No

Table C-2 Prioritization of Conservation Measures and Programs
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Soil Moisture Sensor Giveaway	2	All		X	Irrigation	No
Soil Moisture Sensor Rebate	2	All		X	Irrigation	No
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	3	All	X	X	Water loss; Irrigation	No
Pool Removal Rebates	3	SFR, MFR		X	Pool/Hot Tub	No
Swimming Pool and Hot Tub Cover Rebates	4	SFR, MFR		X	Pool/Hot Tub	Yes, currently
Tiered Water Rate Exemption Assistance Program	1	SFR	X	X	Toilet, Faucet, Showerhead, Clothes Washer, Irrigation	Yes, currently
POLICIES AND REGULATIONS						
Demand Offset/Water Neutral Policy for Large New Developments	4	All	X	X	All	No
Prohibit Once through Cooling Systems	5	CII	X	X	CII Equipment	Yes, currently
Water Waste Ordinance	5	All		X	All Outdoor	Yes, currently
Require <1.0 gal/flush Toilets in New Development	2	All	X		Toilet	No
Require High Efficiency Clothes Washers in New Development	5	SFR, MFR	X		Clothes Washer	Yes, currently
Require <0.25 gal/flush Urinals in New Development	2	CII	X		Urinal	No
Require Cooling Tower Retrofits	2	CII	X		Cooling Towers	No
Require Hot Water on Demand / Structured Plumbing in New Residential Development	4	SFR, MFR	X		Shower/Sink	No
Require On-Site Water Reuse Systems (Grey Water or Black Water) for Large CII Developments	1	CII		X	Irrigation / Recycled Water	Yes, previously
Require Plumbing for Gray Water in New SFR Development	1	SFR		X	Irrigation / Gray Water	Yes, previously
Require Plumbing for Recycled Water in New CII Development	5	CII		X	Irrigation / Recycled Water	Yes, currently
Require Plumbing for Recycled Water in New MFR Development	5	MFR		X	Irrigation / Recycled Water	Yes, currently
Require Rain Barrels in New Development	1	SFR		X	Irrigation	No
Require Submetering by Unit for Existing Commercial Customers	3	CII	X		All Indoor	No

Table C-2 Prioritization of Conservation Measures and Programs
Marin Municipal Water District, Sonoma-Marín Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Require Submetering by Unit for New Commercial Developments	3	CII	X		All Indoor	No
Require Submetering for New MFR Developments	3	MFR	X		All Indoor	No
Require Submetering for New Mobile Home Park Developments	3	MFR	X		All Indoor	No
Require Submetering of Cooling Towers for Existing Customers	3	CII	X		Cooling Towers	No
Require Submetering of Cooling Towers for New Development	3	CII	X		Cooling Towers	No
Require Submetering of Existing MFR (and Mobile Home Park) Customers	3	MFR	X		All Indoor	No
Require Submetering of Landscaping for Existing MFR and Commercial Customers	5	MFR, CII		X	Irrigation	Yes, currently
Require Submetering of Landscaping for New MFR and Commercial Developments	5	CII		X	Irrigation	Yes, currently
Require Swimming Pool and Hot Tub Covers	5	SFR,MFR		X	Pool/Hot Tub	Yes, currently
Require Irrigation Designers / Installers be Certified (QWEL)	3	All		X	Irrigation	No
Require Water Efficiency Plan Reviews for New CII Development	3	CII	X	X	All Indoor	No
Restrict Landscape Irrigation to Designated Days/Times	5	All		X	Irrigation	Yes, currently
Water Conserving Landscape and Irrigation Codes, More Stringent than MWEL0	5	All		X	Irrigation	Yes, currently
Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development	5	All		X	Irrigation	Yes, currently

Abbreviations

AMI = advanced metering infrastructure
CalWEP = California Water Efficiency Partnership
CII = commercial, industrial, institutional
COM = commercial
HEU = High-Efficiency Urinals
IRR = irrigation

MFR = multi-family residential
MWEL0 = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marín Saving Water Partnership
UHET = ultra high efficiency toilet

Notes

(a) Each Water Contractor was asked to rank conservation programs and measures in terms of priority as a locally-administered program, where 5 indicated highest priority and 1 indicated the lowest priority.

Appendix C: UWMP Preparation Notices



February 6, 2026

VIA ELECTRONIC MAIL TO

City of Belvedere
Mr. Robert Zadnik
City Manager
450 San Rafael Avenue
Belvedere, CA 94920

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

A draft of the 2025 UWMP will be made available for public review and a public hearing will be scheduled for spring of 2026. In the meantime, if you would like more information regarding the District’s 2020 UWMP and the schedule for preparing the 2025 UWMP, or if you would like to participate in the preparation of the 2025 UWMP, please contact Nicholas Busse at:

Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Town of Corte Madera
Mr. Adam Wolff
Town Manager
300 Tamalpais Drive
Corte Madera, CA 94925-0159

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Town of Fairfax
Ms. Heather Abrams
Town Manager
142 Bolinas Road
Fairfax, CA 94930

Re: **Notice of Preparation of Urban Water Management Plan - 2025 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

City of Larkspur
Mr. Dan Schwarz
City Manager
400 Magnolia Avenue
Larkspur, CA 94939

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

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Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Marin County Administrator
Mr. Derek Johnson
County Executive
3501 Civic Center Drive, Suite 325
San Rafael, CA 94903

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

City of Mill Valley
Mr. Todd Cusimano
City Manager
26 Corte Madera Avenue
Mill Valley, CA 94941

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

North Marin Water District
Mr. Tony Williams
General Manager
999 Rush Creek Place
Novato, CA 94945

Re: **Notice of Preparation of Urban Water Management Plan - 2025 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

City of Novato
Ms. Amy Cunningham
City Manager
922 Machin Avenue
Novato, CA 94945

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Town of Ross
Ms. Christa Johnson
Town Manager
P.O. Box 320
Ross, CA 94957

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Town of San Anselmo
Mr. David Donery
Town Administrator
525 San Anselmo Avenue
San Anselmo, CA 94960

Re: **Notice of Preparation of Urban Water Management Plan - 2025 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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220 Nellen Avenue
Corte Madera, CA 94925
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nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

City of San Rafael
Ms. Cristine Alilovich
City Manager
1400 Fifth Avenue
San Rafael, CA 94915-1560

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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220 Nellen Avenue
Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

City of Sausalito
Mr. Chris Zapata
City Manager
420 Litho Street
Sausalito, CA 94965

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Sonoma County Water Agency
Mr. Grant Davis
General Manager
404 Aviation Blvd
Santa Rosa, CA 95403

Re: **Notice of Preparation of Urban Water Management Plan - 2025 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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Corte Madera, CA 94925
Phone: (415) 945-1166
nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist



February 6, 2026

VIA ELECTRONIC MAIL TO

Town of Tiburon
Mr. Greg Chanis
Town Manager
1505 Tiburon Boulevard
Tiburon, CA 94920

Re: Notice of Preparation of Urban Water Management Plan - 2025 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the Marin Municipal Water District (“Marin Water”) to update its Urban Water Management Plan (“UWMP”) every 5 years. Marin Water is currently reviewing its existing 2020 UWMP, which was updated in 2024, and considering revisions to the document. The updated 2025 UWMP is due by July 1, 2026. We invite your agency’s participation in this revision process.

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nbusse@marinwater.org

Sincerely,

A handwritten signature in blue ink that reads "Nicholas Busse".

Nicholas Busse, P.E.
Associate Water Resources Specialist

Appendix D: Public Meeting Notice

PLACEHOLDER

Appendix E: Sonoma County Water Agency Contract

DRAFT

Amended and Restated Water Supply Agreement
by and between
The Marin Municipal Water District
and
The Sonoma County Water Agency

Amended and Restated Water Supply Agreement
by and between
The Marin Municipal Water District
and
The Sonoma County Water Agency

This Amended and Restated Water Supply Agreement ("Agreement") is made by and between the Marin Municipal Water District ("MMWD") and the Sonoma County Water Agency ("Sonoma Water") (each referred to individually as "Party" and collectively as "Parties") and is effective as of _____, 2025

Section 1: Recitals.

- A) Sonoma Water was formed and operates pursuant to Appendix 53 of the California Water Code, which authorizes Sonoma Water to enter into contracts to provide a firm supply of water within or outside of Sonoma Water’s jurisdictional boundaries to any municipal corporation or agency (Water Code Appendix 53-9).
- B) MMWD was formed and operates pursuant to the Municipal Water District Act of 1911, which authorizes MMWD to acquire and distribute water for the beneficial use of its residents (Cal. Water Code § 71610).
- C) Sonoma Water entered into contracts with the United States Government to secure the construction of Coyote Valley Dam on the east fork of the Russian River and Warm Springs Dam on Dry Creek (hereafter "Russian River Project").
- D) The Coyote Valley Project was authorized by the Flood Control Act of 1950 (Pub. L. No. 81-516) and was completed by the U. S. Army Corps of Engineers in 1958. This component of the Russian River Project includes the impoundment of Lake Mendocino, which has a capacity of 122,500 acre feet of which between 64,800 acre feet and 111,000 acre feet, depending on the time of year, is allocated to storage for water supply.
- E) In 1955, Sonoma Water (then called the "Sonoma County Flood Control

and Water Conservation District”) sold general obligation bonds to raise \$5,650,000, which it paid to the United States for the reimbursable costs of the water-storage element of the Coyote Valley Project. Parts of the property taxes paid since 1955 by taxpayers within Sonoma County have been used to make payments on these bond obligations and to fulfill other obligations to the United States Government for the Russian River Project.

- F) The Warm Springs Dam Project was authorized by the Flood Control Act of 1962 (Pub. L. No. 87-874) and was completed by the U.S. Army Corps of Engineers in 1984. This component of the Russian River Project includes the impoundment of Lake Sonoma, which has a capacity of 381,000 acre feet, of which 245,000 acre feet is allocated to storage for water supply.
- G) Sonoma Water contracted with the United States to make annual payments to the U.S. for portions of the construction, operation, maintenance, major-replacement and major-rehabilitation costs of the Warm Springs Dam Project. Parts of the property taxes paid since 1971, including future taxes to be paid, by taxpayers within Sonoma County have been paid into a sinking fund that was established to fund Sonoma Water’s payment obligations, and to fulfill other obligations, to the United States Government for the Russian River Project.
- H) In October 1974, Sonoma Water entered into a contract with the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Forestville County Water District, the Valley of the Moon Water District, and the North Marin Water District entitled “Agreement for Water Supply and Construction of Russian River-Cotati Intertie Project”, which was last amended June 23, 2006 (hereafter the “Restructured Agreement for Water Supply”).
- I) The Restructured Agreement for Water Supply authorizes the use of certain water transmission facilities (hereinafter “Transmission System”) for the purpose of Sonoma Water delivering water to MMWD, under prescribed terms and conditions, water which is available in the Russian River and the Santa Rosa Plain groundwater wells.
- J) On July 3, 1975, Sonoma Water and MMWD entered into an agreement entitled “Offpeak Water Supply Agreement”, which provides for Sonoma

Water to deliver up to 4,300 acre feet of water per fiscal year, subject to specified terms and conditions, which Offpeak Water Supply Agreement was amended on August 28, 1984, on May 3, 1988, and on January 25, 1995. On October 22, 1991, Sonoma Water and MMWD entered into an agreement entitled the "Agreement for Sale of Water between the Sonoma County Water Agency and the Marin Municipal Water District" for the delivery of up to 10,000 acre feet of water per fiscal year from Sonoma Water to MMWD, under prescribed terms and conditions. On January 25, 1996, Sonoma Water and MMWD entered into a "Supplemental Water Supply Agreement", which amended and incorporated the "Third Offpeak Water Supply Agreement" as Exhibit A thereto and the "Amended Agreement for Sale of Water between the Sonoma County Water Agency and the Marin Municipal Water District" as Exhibit B thereto, which Supplemental Water Supply Agreement was renewed and extended pursuant to the "Renewal of the Third Amended Offpeak Water Supply Agreement and the Amended Agreement for the Sale of Water between the Sonoma County Water Agency and Marin Municipal Water District" effective July 1, 2015 through June 30, 2025 (hereinafter the "2015 Renewal Agreement").

- K) Pursuant to the Restructured Agreement for Water Supply and the Off Peak Water Supply Agreement, the North Marin Water District and MMWD, respectively, have paid Sonoma Water a Russian River Conservation Charge, the proceeds of which have been paid into the sinking fund established to fund Sonoma Water's obligations to the United States for the Russian River Project, as described in Recitals E and G above.
- L) Sonoma Water currently utilizes the Transmission System to supply water to the Water Contractors under the Restructured Agreement for Water Supply, as well as Other Agency Customers under other agreements. Payments by the Water Contractors under the Restructured Agreement for Water Supply were and are being used to fund payments on the bonds sold to finance the construction of, and upgrades to, the Transmission System and to directly fund the construction of parts of the Transmission System. Other customers of Sonoma Water divert water directly from the Russian River.
- M) In June 1980, Sonoma Water certified its final environmental impact report

- on Proposed Amendments of Permits on Applications 12919A, 15736, 15737 and 19351. In July 1984, Sonoma Water certified its supplemental environmental impact report covering Proposed Coordinated Use of the Water Supply of Lake Mendocino and Lake Sonoma, Russian River Project. On November 14, 1990, MMWD certified its Water Supply Plan Program Final Environmental Impact Report. On September 24, 1991, MMWD certified its Water Supply Project Final Environmental Impact Report. These reports together satisfy the requirements of the California Environmental Quality Act (Pub. Res. Code § 21000, et seq.) for ongoing water sales pursuant to this Agreement.
- N) Sonoma Water holds Water Right Permits 12947A, 12949, 12950 and 16596, which were issued by the State Water Resources Control Board and its predecessors pursuant to Applications 12919A, 12920A, 15736, 15737 and 19351, which Permits authorize Sonoma Water to divert Russian River water and to redivert water previously stored in Lake Mendocino and Lake Sonoma, subject to specific terms and conditions.
- O) Recital E. in the Supplemental Agreement recognized that one of the reasons for that agreement was “to accommodate the Agency’s [Sonoma Water] efforts to attempt to ensure a continuation of Pacific Gas and Electric Company’s historic diversions of Eel River water to the Russian River and to increase the reliability of the water supply deliverable to [MMWD].” The need to ensure the continuation of such flows for the benefit of all of Sonoma Water’s Water Contractors was heightened by the amendments made by the Federal Energy Regulatory Commission in 2004 to Pacific Gas & Electric Company’s (PG&E) license for the Potter Valley Project, which reduced such flows and subsequently by PG&E’s decision to pursue surrender of its license to operate the Potter Valley Project and propose its decommissioning. By entering into this Agreement, the parties recognize the ongoing importance of the continuation of flows from the Eel River to the Russian River for the benefit of all of Sonoma Water’s customers.
- P) MMWD and Sonoma Water recognize the need for a regional approach to water supply, water conservation, fishery and water reuse issues.
- Q) In May 1984, June 1996 and June 2005, MMWD made payments to

Sonoma Water of \$168,348, \$2,837,344 and \$6,326,257, respectively, and MMWD made the latter two payments pursuant to Section 8 of the Water Sale Agreement for the purpose of securing firm water, which lump sum payments represent a share of the Warm Springs Dam sinking fund and principal payments made to the United States Government by Sonoma Water for Lake Sonoma water storage space corresponding to a potential additional 10,000 acre feet per annum of the 75,000 acre feet per annum net firm yield of the Warm Springs Dam Project, which increased MMWD's total potential net yield of the Warm Springs Dam Project to 14,300 acre feet per fiscal year.

- R) Due to changes in circumstances since the Offpeak Agreement and the Water Sale Agreement were agreed upon, some provisions are no longer relevant and impose obligations and procedures on MMWD and Sonoma Water that are no longer necessary and provide undue burden to the Parties. The Parties wish to update the agreements and consolidate them into one document for ease of use. As of the effective date of this Agreement, this Agreement will replace all prior water sales agreements between Sonoma Water and MMWD including the 2015 Renewal Agreement.

Now, therefore, in consideration of the foregoing recitals, which are incorporated herein and made part of this Agreement, and of the prior agreements between the parties, and of the promises made herein, MMWD and Sonoma Water agree as follows:

Section 2: Definitions.

When used in this Agreement, unless otherwise distinctly expressed or manifestly incompatible with the intent of this Agreement, capitalized terms shall have the meanings set forth below or, if not defined below, the meanings set forth in the Restructured Agreement for Water Supply:

- (a) "Sonoma Water" means the Sonoma County Water Agency or any successor thereto.
- (b) "Sonoma Water's Water Rights Permits" means water rights permits 12947A, 12949, 12950 and 16596, which the State Water Resources Control Board and its predecessors issued to Sonoma Water

pursuant to Applications 12919A and 12920A, 15736, 15737 and 19351, as such permits now exist or in the future may exist (including any licenses that may be issued to replace these permits).

- (c) "Agreement" means this Amended and Restated Water Supply Agreement.
- (d) "Fiscal Year" means the financial accounting year beginning on July 1 and ending on June 30.
- (e) "MMWD" means the Marin Municipal Water District or any successor thereto.
- (f) "Potter Valley Project" means the hydroelectric project owned and operated by the Pacific Gas and Electric Company and licensed by the Federal Energy Regulatory Commission as Project No. P-77.
- (g) "Other Agency Customers" means Sonoma Water, the County of Sonoma, California American Water Company (with respect to the Larkfield Water District), Forestville Water District, Lawndale Mutual Water Company Kenwood Village Water Company, Penngrove Water Company, the City of Sebastopol, the State of California, and Santa Rosa Junior College.
- (h) "Regular Customers" means any of the Water Contractors or Other Customers.
- (i) "Restructured Agreement for Water Supply" means the Restructured Agreement for Water Supply between Sonoma Water and the Cities of Cotati, Petaluma, Santa Rosa, Rohnert Park, and Sonoma, the Town of Windsor, and Forestville, Valley of the Moon, and North Marin Water Districts, executed on June 23, 2006, and any amendments or successor agreements thereto.
- (j) "Russian River Conservation Charge" means the charge described in Section 5(b) of this Agreement.

- (k) "Russian River Projects Charge" means the charge described in Section 5(c) of this Agreement.
- (l) "Transmission System" means the water-supply facilities financed and constructed pursuant to the Restructured Agreement for Water Supply and its predecessor agreements.
- (m) "Water Contractor" means a party signatory to the Restructured Agreement for Water Supply executed on June 23, 2006, and any amendments or successor agreements thereto.

Section 3: Sonoma Water Delivery of Water to MMWD.

- (a) Subject to all of the terms and conditions of this Agreement, and subject to the provisions of the Restructured Agreement for Water Supply (as now existing or as may be amended in the future), MMWD may purchase water from Sonoma Water pursuant to this Agreement in any Fiscal Year in an amount not less than 5,300 acre feet but not to exceed 14,300 acre-feet.
- (b) Sonoma Water shall deliver water at the requested rate to MMWD only to the extent that water supply is available and the Transmission System has capacity in excess of that required by Sonoma Water to supply the Water Contractors, but not less than 5,300 acre feet per fiscal year.
- (c) In September each year, Sonoma Water and MMWD will meet to determine MMWD's likely water demand for the coming fiscal year and whether MMWD's potential water supply needs can likely be supported by anticipated Sonoma Water's water supply availability and Transmission System capacity. Notwithstanding the foregoing, the maximum delivery rate to MMWD shall be limited to 25 million gallons per day (MGD) during the calendar months of January, February, March, April, November and December, and shall be limited to 12.8 mgd between the months of May through October. In the event that, in any given year, MMWD has a desire for a greater maximum mgd deliveries, MMWD may request the same from Sonoma Water and provided that there is sufficient Transmission System capacity and available water, Sonoma Water will not unreasonably withhold such additional deliveries to MMWD. MMWD agrees to provide written notice to all members of the Technical Advisory Committee, as that term is defined in the Restructured Agreement, of any such request by MMWD as well as the correspondent determination made by Sonoma

Water.

- (d) All water furnished by Sonoma Water to MMWD hereunder shall be delivered at a separately metered turnout or through the North Marin Water District's metered turnout(s) at MMWD's option.
- (e) Water received by MMWD pursuant to this Agreement shall only be used within the sphere of influence (as such term is defined in section 56076 of the Government Code) of the MMWD.

Section 4: Shortage and Impairment.

Except as otherwise provided herein, Sonoma Water shall release water from storage in Lake Mendocino or Lake Sonoma when necessary to make available in the Russian River sufficient water to make the deliveries provided for herein. If by reason of drought, environmental laws or regulations, other causes beyond the control of Sonoma Water, a deficiency does occur, then Sonoma Water shall not be liable to MMWD for any damage resulting therefrom. In the event of an impairment of or limitation on the use or capacity of the Transmission System, or other facility that affects Sonoma Water's ability to deliver water to MMWD pursuant to this Agreement, by reason of natural disaster, sabotage, legal impediment or other cause beyond the control of Sonoma Water, Sonoma Water shall not be liable to MMWD for any damage arising therefrom, provided however, that in such event MMWD shall have the right to roll any remaining undelivered allotment below the minimum 5,300 acre feet minimum fiscal year requirement into the following Fiscal Year such that the minimum take for that year is the 5,300 AF minimum and the undelivered water from the prior fiscal year so long as MMWD pays for the full 5,300 acre feet at the end of the fiscal year in which it was to be delivered at the then current rates if Sonoma Water reasonably determines that it has water available.

In the event of shortage of water in the Russian River or the Russian River Project that requires Sonoma Water to apportion available supply of water, Sonoma Water shall apportion the available water supply in accordance with the shortage and apportionment provisions in the Restructured Agreement section 3.5, so that it may make deliveries as follows:

- (a) First, Sonoma Water shall deliver to each of its Regular Customers, not in excess of the respective entitlements set forth in Sections 3.1, 3.2 and 3.3 of the Restructured Agreement for Water Supply or any amendments or

successor agreements thereto, authorize Sonoma Water's Russian River customers to divert or redivert not in excess of the amounts for which those customers have contracted to purchase from Sonoma Water, and deliver water to MMWD not in excess of the amounts set forth in Section 3 of this Agreement, the quantities of water required by each for human consumption, sanitation and fire protection, as determined by Sonoma Water after taking into consideration all other sources of potable water then available to said customer;

- (b) Second, to the extent additional water is available to Sonoma Water, Sonoma Water shall deliver such water to Sonoma Water's Regular Customers, authorize Sonoma Water's Russian River customers, to divert or redivert such water and deliver such water to MMWD in proportion to the respective entitlements set forth in Section 3.1, 3.2 and 3.3 of the Restructured Agreement for Water Supply, or any amendment or successor agreements thereto, the agreements between Sonoma Water and its Russian River customers, and section 3 of this Agreement, provided, however, that no customer shall receive under subdivisions (a) and (b) hereof a total quantity of water in excess of its reasonable requirements or its said entitlement or contracted amount, whichever is less.

Section 5: Charges and Payment.

For all water delivered under this Agreement, MMWD shall pay Sonoma Water each of the following charges:

- (a) A per-acre-foot charge equal to the highest rate per acre-foot then charged by Sonoma Water to any party to the Restructured Agreement for Water Supply for water taken from either the Petaluma Aqueduct or the Santa Rosa Aqueduct, multiplied by 1.11; provided, however, that the 20% surcharge imposed on the Town of Windsor under Section 4.17(a) of the Restructured Agreement for Water Supply shall not be included in determining the highest rate per acre-foot for water taken from the Santa Rosa Aqueduct or Petaluma Aqueduct. Seven and four hundred thirty-two one-thousandths percent (7.432%) of this per-acre-foot charge shall be placed in the Russian River Projects Fund; two and four hundred seventy-seven thousandths percent (2.477%) of this per-acre-foot charge shall be used, at the discretion of Sonoma Water, to pay for the costs of Common Facilities, to pay the Capital Costs of Aqueduct Facilities relating to the Santa Rosa or Petaluma Aqueducts, or to pay operations and maintenance

costs; and the remainder shall be applied pursuant to the Restructured Agreement for Water Supply, with the water delivered to MMWD considered to be delivered from the Petaluma Aqueduct.

- (b) A per-acre-foot Russian River Conservation Charge in lieu of the property taxes levied by Sonoma Water on property in Sonoma County, to pay the capital, operation and maintenance costs associated with the Warm Springs Dam Project and the Russian River Project. The charge shall be determined annually on or before April 30 preceding each September 30. The Russian River Conservation Charge shall be determined by multiplying the tax rate levied by Sonoma Water in the then current Fiscal Year to pay the costs associated with the Warm Springs Dam Project times the total assessed value of secured and unsecured property situated within the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Valley of the Moon Water District, and the Town of Windsor, and dividing the product by the total number of acre feet of water delivered to said public agencies pursuant to Section 3.1 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, during the twelve month period ending on March 31.
- (c) A per-acre-foot Russian River Projects Charge in lieu of the property taxes levied on property in Sonoma County and other Sonoma Water general fund monies which are transferred by Sonoma Water to Sonoma Water's Russian River Projects Fund and expended to pay for or partially pay for:
- (1) carrying out Sonoma Water's Coyote Valley Dam Project and Warm Springs Dam Project channel-stabilization works obligations to the United States Government and the State of California under Sonoma Water Board of Directors Resolutions No. 6847 adopted May 24, 1955, No. 7798 adopted September 27, 1955, No. DR00793-1 adopted September 25, 1961 and Resolution No DR68485 adopted December 23, 1980;
 - (2) securing and defending appropriative water rights which are necessary for the realization of the full benefits of the Coyote Valley Dam and Warm Springs Dam Projects;
 - (3) Sonoma Water's share of the United States Government's investment, operation and maintenance costs associated with the Coyote Valley Dam and Warm Springs Dam Projects;
 - (4) the acquisition of all or part of the Potter Valley Project, contributions made to the Potter Valley Project owner, or its successor, to insure the continued operation of all or part of the Potter Valley Project or its successor; and
 - (5) fishery mitigation and enhancement projects undertaken by Sonoma

Water in the Russian River and Eel River and their tributaries. The Russian River Projects Charge shall be determined by dividing the total amount of Sonoma Water monies expended from Sonoma Water's Russian River Projects Fund in the preceding ten Fiscal Years, exclusive of the funds contributed to the Fund by MMWD and the North Marin Water Districts and interest earnings attributable to funds contributed by MMWD and the North Marin Water District, by the sum of the total acre-feet of water delivered by Sonoma Water to the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa, and Sonoma, the Valley of the Moon Water District, and the Town of Windsor (plus amounts diverted by the Town of Windsor via its own facilities under Sonoma Water's water rights) pursuant to Sections 3.1 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, during the preceding ten Fiscal Years and multiplying the quotient by the ratio that the assessed value of secured and unsecured property situated within the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Valley of the Moon Water District, and the Town of Windsor bears to the assessed value of all secured and unsecured property within Sonoma County, provided however, in no event shall the Russian River Projects Charge exceed \$20.00 per acre-foot. Sonoma Water shall keep proper books, records and accounts in which complete and accurate entries shall be made of all Sonoma Water general fund monies transferred to Sonoma Water's Russian River Projects Fund and all expenditures made from the fund for the purposes described in this paragraph. Sonoma Water shall maintain a separate account within the Russian River Projects Fund for monies contributed by MMWD and the North Marin Water District. Monies expended from the Russian River Projects Fund shall be deemed to have been expended from the MMWD and North Marin Water District account in the proportion that the balance of the account bears to the total Russian River Projects Fund balance at the end of the Fiscal Year quarter preceding the expenditure.

- (d) A lump sum payment which shall be determined by multiplying the Russian River Conservation Charge times the difference between 14,300 acre-feet and the sum of the total acre-feet of water delivered under this agreement during the prior Fiscal Year plus the total acre-feet of water for which payments have been made in lieu of delivery pursuant to Section 5(f) of this Agreement during the prior Fiscal Year.

- (e) A lump sum payment which shall be determined by multiplying the Russian River Projects Charge times the difference between 14,300 acre-feet and the sum of the total acre-feet of water delivered under this Agreement during the prior Fiscal Year plus the total acre-feet of water for which payments have been made in lieu of delivery pursuant to Section 5(f) of this Agreement during the prior Fiscal Year.
- (f) A lump sum payment, calculated as follows: If the total amount of water delivered to MMWD pursuant to this Agreement is less than 5,300 acre-feet in any Fiscal Year, then Sonoma Water shall include in the bill for the month of August the difference between the actual amount of water delivered during the previous Fiscal Year and 5,300 acre-feet, and MMWD shall pay for such amount at the same rate as though such water had been delivered, if and to the extent that such water was available to MMWD. Water shall be deemed to have been available to MMWD during the previous Fiscal Year if MMWD could have taken delivery of such water at any time during such Fiscal Year at delivery rates not exceeding available Transmission System capacity. Sonoma Water shall keep and make available for review by MMWD operating records indicating the availability of water to MMWD.
- (g) MMWD Payment to Support Regional Water Resiliency. Within sixty (60) days following full execution of this Agreement, MMWD will pay to Sonoma Water an amount equal to Twelve Million Five Hundred Thousand Dollars (\$12,500,000), a portion of which funds, specifically Nine Million Dollars (\$9,000,000) will be used by Sonoma Water for projects to enhance water resiliency within the Russian River System. The remaining portion, Three Million Five Hundred Thousand Dollars (\$3,500,000) will be used by Sonoma Water for projects to enhance Sonoma Water's ability to deliver winter water. Sonoma Water shall be responsible for conducting any environmental review that may be required under the California Environmental Quality Act for all such projects.
- (h) Notwithstanding any dispute between Sonoma Water and MMWD, MMWD shall pay all bills made by Sonoma Water pursuant to this Agreement when due and shall not withhold all or any part of any amount billed pending the final resolution of such dispute. In the event of a dispute, MMWD may pay its bills under protest, and if necessary under the ultimate resolution of the dispute, Sonoma Water shall make an

appropriate refund to MMWD, including interest on the overpaid amount at the rate obtained by Sonoma Water as a result of investment of the disputed amount. If MMWD does not pay any bill by the due date for such bill, then, in addition to the principal amount due, MMWD also shall pay Sonoma Water interest on this principal amount due, calculated from the due date until the payment date at the legal rate per annum established pursuant to section 685.010 of the Code of Civil Procedure.

Section 6: Construction of New Aqueduct.

Sonoma Water acknowledges that MMWD is evaluating the feasibility and efficacy of constructing, at MMWD's sole cost and expense, a new aqueduct from the existing North Marin Aqueduct to MMWD's Nicasio and/or Soulajule Reservoirs to enhance water resiliency and reliability consistent with long term planning for the Russian River Project. MMWD will continue to actively communicate with Sonoma Water regarding project design and development and Sonoma Water and if requested by MMWD, will provide available information and data necessary to project planning and assessment of project benefits and impacts. In connection with the foregoing, MMWD will be solely responsible for the completion of any analysis required pursuant to the California Environmental Quality Act.

Section 7: Sonoma Water Petitions and Applications with State Water Resources Control Board.

MMWD acknowledges that the existing 75,000 acre foot per year limit on diversions and rediversions in Sonoma Water's Water Right Permits does not allow Sonoma Water to utilize the entire yield of the Russian River Project, and that Sonoma Water may from time to time file petitions or applications with the State Water Resources Control Board ("State Board") to increase this or future limits or otherwise provide water to Sonoma Water customers. MMWD also acknowledges that Sonoma Water has filed petitions with the State Board requesting changes in minimum instream flow requirements and other changes in its water rights permits to respond to hydrologic conditions or any environmental release requirements, or both. MMWD recognizes and agrees that it will be in the public interest for the State Board to grant such petitions and applications.

Section 8: Waiver and Indemnity.

- (a) MMWD waives, releases and forever discharges Sonoma Water, its officers, agents and employees from any and all liabilities, claims, demands, losses and costs relating to any of the following: (1) any property damage or personal injury arising from any non-delivery of water requested by MMWD pursuant to this Agreement, or for any property damage or personal injury arising from the quality of water delivered pursuant to this Agreement, if such property damage or personal injury is caused by lack of available capacity in the Transmission System, drought, earthquake or other Act of God, strike or other labor dispute, partial or total dam, gate or tunnel loss, dam, gate or tunnel repairs, water pollution, or any factor beyond the control of Sonoma Water (whether or not such factor is listed in this sentence); and (2) any property damage or personal injury arising from any decision of Sonoma Water regarding: (a) determinations of the availability of water for sale by Sonoma Water to MMWD pursuant to this Agreement; (b) allocation of transmission system capacity; (c) proposed expansions of the Transmission System; or (d) repair (or non-repair) of the Potter Valley Project, Coyote Valley Dam or Warm Springs Dam. MMWD's waiver, release and discharge described in this paragraph shall apply to any of the property damages or personal injuries described in this paragraph, whether or not such property damages or personal injuries were caused by Sonoma Water's negligence, unless such property damages or personal injuries resulted from Sonoma Water's negligence, willful misconduct or violation of law.
- (b) MMWD shall indemnify, hold harmless, protect and defend Sonoma Water, its officers, agents and employees from and against any and all liabilities, claims, demands, damages, losses, disabilities or expenses (including attorney fees and litigation costs) of every nature arising out of, or in connection with: (1) the lack of quantity of water that has been delivered by Sonoma Water to MMWD pursuant to this Agreement; or (2) the control, conveyance and disposition of water that has been delivered by Sonoma Water to MMWD pursuant to this Agreement. For the purposes of this section, the point of delivery shall be as specified in Section 3 of this Agreement. MMWD shall provide such indemnification, holding harmless, protection and defense whether or not such liabilities, claims, demands, damages, losses, disabilities or expenses are based on Sonoma Water's negligence, unless such liabilities, claims, demands, damages, losses,

disabilities or expenses are based on Sonoma Water's sole negligence, willful misconduct or violation of law.

- (c) This section shall not apply to any construction activities, or construction contracts, relating to the construction described in Section 6 of this Agreement. The provisions in this section regarding attorney fees shall not apply to any other section of this Agreement.

Section 9: Water Conservation; Coordination on Urban Water Management Planning.

- (a) MMWD and Sonoma Water will comply with all applicable state laws related to water conservation planning and implementation, including the Urban Water Management Planning Act, Water Code sections 10610-10655 (as such act now exists or in the future may exist). MMWD shall implement or use its best efforts to secure the implementation of any water conservation requirements that may be added as terms or conditions of Sonoma Water's appropriative water rights permits or licenses, or with which the Agency must comply under compulsion of regulation or law.
- (b) MMWD and Sonoma Water shall coordinate the preparation of their respective Urban Water Management Plans required by the Urban Water Management Planning Act. MMWD shall provide Sonoma Water MMWD's projections of projected future water demands, conservation, recycled water use, and other non-Sonoma Water water supplies, and the methodology and assumptions used by MMWD to produce those projections. Sonoma Water shall review the projections and may provide comments on the projections, and shall provide MMWD with projections of the amount of water to be provided by Sonoma Water to MMWD to be used in MMWD's and the Sonoma Water's Urban Water Management Plans, provided, however, that nothing in this Section 9, including any lack of compliance, shall impact the other provisions of this Agreement nor any obligation hereunder.

Section 10: Water Quality.

Water delivered by Sonoma Water to MMWD pursuant to this Agreement shall be of the same general quality as water delivered by Sonoma Water from the transmission system to the Water Contractors in compliance with California

drinking water standards. Except as expressly stated in the preceding sentence, Sonoma Water does not make any express or implied warranty regarding the quality of the water delivered pursuant to this Agreement. The payment obligations of MMWD set forth in Section 5 shall not be affected in any manner by the quality of the water delivered by Sonoma Water hereunder.

Section 11: CEQA for Future Projects.

Pursuant to section 15051(d) of the State CEQA Guidelines, MMWD is designated as the lead agency under the California Environmental Quality Act for the construction of any new aqueduct to be constructed by MMWD pursuant to Section 6 of this Agreement. Sonoma Water is designated as the lead agency for any other projects north of Kastania Reservoir that Sonoma Water may construct to implement this Agreement.

Section 12: CEQA for this Agreement.

Pursuant to section 15061 of the California Environmental Quality Act (CEQA) Guidelines, the parties have evaluated this Agreement and have concluded that their approval of this Agreement is exempt from the provisions of CEQA under Section 15301 of the CEQA Guidelines because MMWD fully exercised its right to delivery of water under the 2015 Renewal Agreement, the not to exceed amount of water to which MMWD is entitled under this Agreement is unchanged from the amounts included under the 2015 Renewal Agreement and future levels of diversions and use of water by MMWD under this Agreement will not be significantly different from present levels of diversion and use. Accordingly, the parties will file, pursuant to CEQA Guidelines section 15062, notices of exemption with the Marin and Sonoma County Clerks and the State Clearinghouse of the Office of Planning and Research.

Section 13: Term.

This Agreement supersedes the 2015 Renewal Agreement. This Agreement shall be effective on July 1, 2025 and shall remain in effect until June 30, 2040. Upon the request of MMWD, Sonoma Water agrees to enter into renewal agreements for periods not to exceed the then-existing term of the Restructured Agreement for Water Supply or any renewals or amendments to the Restructured Agreement for Water Supply upon the same terms and conditions contained herein, except that Sonoma Water may make reasonable adjustments to the charges under Section 5 of this Agreement, and any such reasonable adjustments then shall be

included in any renewal agreement. Sonoma Water acknowledges that the expiration date of the Restructured Agreement for Water Supply is June 30, 2040. Based upon MMWD's longstanding and ongoing participation and support of Sonoma Water's Russian River Project, including lump sum capital payments and other payments made by MMWD in parity with Sonoma Water's Water Contractors, Sonoma Water agrees to advocate to include MMWD in any discussions related to any renewal or extension of the Restructured Agreement for Water Supply. If at the expiration date of this Agreement and the Restructured Agreement for Water Supply has been terminated or has expired without either being renewed or replaced by another agreement pertaining to water supply, then upon the request of MMWD, Sonoma Water shall enter into renewal agreements for periods not to exceed forty (40) years upon the same terms and conditions contained herein, except that Sonoma Water may make reasonable adjustments to the charges under Section 5 of the Agreement and any such reasonable adjustment then shall be included in any renewal agreement.

Section 14: Modifications:

This writing is intended both as the final expression of the agreement between the parties hereto with respect to the included terms and conditions and as a complete and exclusive statement of the terms of the agreement. Pursuant to Code of Civil Procedure section 1856, no modification of the Agreement shall be effective unless and until such modification is evidenced by a writing signed by all parties.

Section 15: Equitable Remedies.

Because water is a scarce and precious resource, MMWD will not have an adequate remedy at law, and thus may request a court of competent jurisdiction to order equitable remedies, to compel Sonoma Water to deliver the water that MMWD is entitled to receive pursuant to this Agreement. Such equitable remedies shall be MMWD's sole and exclusive remedies in actions brought by MMWD relating to the amounts of water that Sonoma Water must deliver to MMWD pursuant to this Agreement.

Section 16: Notices.

All notices shall be in writing and notices and payments may be given by personal delivery or by mail. Notices and payments sent by mail shall be addressed as follows:

To Sonoma Water:
General Manager,
Sonoma County Water Agency,
404 Aviation Boulevard, Santa Rosa, CA 95403;

To MMWD:
General Manager,
Marin Municipal Water District,
220 Nellen Avenue, Corte Madera, CA 94925

When so addressed, a notice shall be deemed given upon deposit in the United States Mail, postage prepaid. In all other instances, notices and payments shall be deemed given at the time of actual delivery. Changes may be made to the names and addresses of the person to whom notices and payments are to be given by giving notice pursuant to this section.

Section 17: Demand for Assurances. When reasonable grounds for insecurity arise with respect to the performance of either party, the other party may, in writing, demand adequate assurance of due performance and, until it receives such assurance, may, if commercially reasonable, suspend any performance for which the agreed return performance has not been received. "Commercially reasonable" includes not only the conduct of either party with respect to performance under this Agreement, but also conduct with respect to other agreements with the other party to this Agreement or others. After receipt of a justified demand, the failure to provide within a reasonable time, but not exceeding 30 days, such assurance of due performance as is adequate under the circumstances of the particular case is a repudiation of this Agreement. Acceptance of any improper delivery, service, or payment does not prejudice the aggrieved party's right to demand adequate assurance of future performance.

Section 18: No Third-Party Beneficiaries.

No third-party beneficiaries are intended or established by this Agreement.

Section 19: Representation by Counsel.

Sonoma Water and MMWD each was represented by independent counsel in the negotiation and execution of this Agreement. For the purposes of interpretation of this Agreement, neither party shall be deemed to have been the drafter of this Agreement.

Section 20: Merger.

This Agreement is intended both as a final expression of the agreement between the parties hereto with respect to the included terms and conditions and as a complete and exclusive statement of the terms of the Agreement.

ATTEST: MARIN MUNICIPAL WATER DISTRICT

Board Secretary

By: _____
Matt Samson, President
Board of Directors

Reviewed As To Form:

Molly MacLean, General Counsel

ATTEST: SONOMA COUNTY WATER AGENCY

Deputy Clerk of the
Board of Directors

By: _____
Chair, Board of Directors

DATE: _____

Reviewed As To Substance By
Sonoma County Water Agency:

Grant Davis, General Manager

Reviewed As To Form:

Deputy County Counsel

**Renewal of the Third Amended Offpeak Water Supply Agreement and the
Amended Agreement for the Sale of Water between the Sonoma County Water
Agency and Marin Municipal Water District**

This Renewal of the Third Amended Offpeak Water Supply Agreement and the Amended Agreement for the Sale of Water between the Sonoma County Water Agency and Marin Municipal Water District ("Renewal Agreement") is made by and between the Marin Municipal Water District ("MMWD") and the Sonoma County Water Agency ("Agency") and is effective as of July 1, 2015.

Recitals

A. Agency and MMWD are parties to a Supplemental Water Supply Agreement dated January 25, 1996, which incorporates two agreements between the Agency and MMWD that are attached as exhibits to the Supplemental Water Supply Agreement, the Third Amended Offpeak Water Supply Agreement (Exhibit A, referred to herein as the "Offpeak Agreement") and the Amended Agreement for the Sale of Water between the Sonoma County Water Agency and Marin Municipal Water District (Exhibit B, referred to herein as the "Water Sale Agreement").

B. The Offpeak Agreement and the Water Sale Agreement by their terms remain in effect until June 30, 2015 as provided in the Amendment To and Temporary Extension of the Supplemental Water Supply Agreement between MMWD and the Agency dated June 27, 2014.

C. MMWD has requested that the Offpeak Agreement and the Water Sale Agreement be renewed pursuant to Section 7 of the Offpeak Agreement and Section 18 of the Water Supply Agreement.

D. In September 2008, the National Marine Fisheries Service issued its *Russian River Biological Opinion*, which requires the Agency to implement certain activities and projects in the Russian River watershed to improve habitat for listed salmonid species as a condition to receiving "incidental take" authorization in connection with its operation of the Russian River Project and the Water transmission system. MMWD also has listed salmonid species present in streams within its water service area. The protection and recovery of listed salmonid species is a high priority for the Agency and for MMWD.

E. The Supplemental Water Supply Agreement recognized that one of the reasons for that agreement was "to accommodate the Agency's efforts to attempt to ensure a continuation of Pacific Gas and Electric Company's historic diversions of Eel

River water to the Russian River and to increase the reliability of the water supply deliverable to [MMWD].” The need to ensure the continuation of such flows was heightened by the amendments made by the Federal Energy Regulatory Commission in 2004 to Pacific Gas & Electric Company’s license for the Potter Valley Project, which reduced such flows. By entering into this Renewal Agreement, the parties recognize the ongoing importance of the continuation of such flows.

Agreement

Wherefore, in consideration of the foregoing and the mutual promises set forth herein, Agency and MMWD agree as follows:

1. This Renewal Agreement shall be effective on July 1, 2015. On the effective date of this Renewal Agreement, the Offpeak Agreement shall be amended as indicated in the attached Exhibit A and the Water Sale Agreement shall be amended as indicated in the attached Exhibit B.

2. Pursuant to section 15051(d) of the CEQA Guidelines, MMWD is designated as the lead agency under the California Environmental Quality Act for the execution of this Renewal Agreement, and for any projects south of Kastania Reservoir that MMWD may construct to implement this Renewal Agreement. Agency is designated as the lead agency for any projects north of Kastania Reservoir that Agency may construct to implement this Renewal Agreement.

3. MMWD shall indemnify Agency and its officers, agents and employees for any and all liabilities, claims, demands, damages, losses, disabilities and expenses (including attorney fees and litigation costs) of every nature arising out of, or in connection with, any legal proceeding that is commenced against the Agency and that alleges that Agency’s execution of this Renewal Agreement violates the California Environmental Quality Act or the CEQA Guidelines. MMWD shall provide such indemnification whether or not such liabilities, claims, demands, damages, losses, disabilities or expenses are based on Agency’s negligence, unless such liabilities, claims, demands, damages, losses, disabilities or expenses are based on Agency’s sole negligence, willful misconduct or violation of law. The provisions in this section regarding attorney fees shall not apply to any other section of this Renewal Agreement.

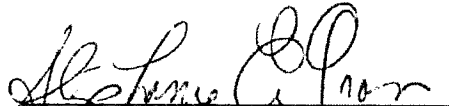
4. This writing is intended both as the final expression of the agreement between the parties hereto with respect to the included terms and conditions and as a complete and exclusive statement of the terms of the Renewal Agreement. Pursuant to Code of Civil Procedure section 1856, no modification of the Renewal Agreement shall be effective unless and until such modification is evidenced by a writing signed by all parties.

5. No third party beneficiaries are intended or established by this Renewal Agreement.

6. Agency and District each was represented by independent counsel in the negotiation and execution of this Renewal Agreement. For the purposes of interpretation of this Renewal Agreement, neither party shall be deemed to have been the drafter of this Renewal Agreement.

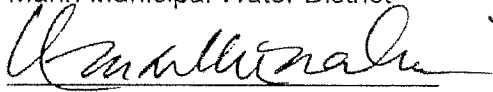
ATTEST:

MARIN MUNICIPAL WATER DISTRICT


Board Secretary

By: 
John C. Gibson, President
Board of Directors

Reviewed As To Substance By
Marin Municipal Water District


Krishna Kumar
General Manager

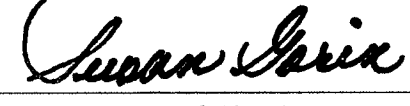
Reviewed As To Form:


Mary R. Casey
General Counsel

ATTEST:

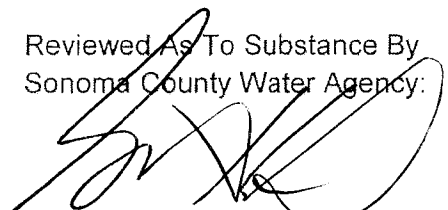
SONOMA COUNTY WATER AGENCY


Deputy Clerk of the
Board of Directors

By: 
Chair, Board of Directors

DATE: 6/16/15

Reviewed As To Substance By
Sonoma County Water Agency:


Grant Davis, General Manager

Reviewed As To Form:


Steven S. Shupe
Deputy County Counsel

Exhibit A**Amendments To Third Amended Offpeak Water Supply Agreement****FOURTH AMENDED
OFFPEAK WATER SUPPLY AGREEMENT**

This Fourth Amended Offpeak Water Supply Agreement ("Offpeak Agreement") is made and entered into effective this July 1, 2015, by and between the Marin Municipal Water District, a public body, hereinafter called "Marin" and the Sonoma County Water Agency, a public body, hereinafter called "Agency".

WITNESSETH:

WHEREAS, Agency entered into contracts with the United States Government to secure the construction of Coyote Valley Dam on the East Fork Russian River and Warm Springs Dam on Dry Creek (hereinafter "Russian River Project"); and

WHEREAS, Agency entered into a contract with the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa, and Sonoma, the Forestville County Water District, the Valley of the Moon Water District, and the North Marin Water District (hereinafter "North Marin") entitled, Agreement for Water Supply and Construction of Russian River-Cotati Intertie Project, dated October 25, 1974, and last amended June 23, 2006 (hereinafter "Restructured Agreement for Water Supply").

WHEREAS, said Restructured Agreement for Water Supply authorizes the use of certain water transmission facilities (hereinafter

"Transmission System") for the purpose of delivering to Marin, under prescribed terms and conditions, water which is available in the Russian River; and

WHEREAS, Agency entered into a contract with Marin entitled Second Amended Offpeak Water Supply Agreement, dated May 3, 1988, which provides for the delivery to Marin by Agency, under prescribed terms and conditions, of not to exceed 4,300 acre feet of Russian River water per fiscal year; and

WHEREAS, parts of the property taxes paid since 1971 by the taxpayers of Sonoma County have been paid into a sinking fund that was established to fund Agency's payment obligations to the United States Government for the Warm Springs Dam Project and parts of the property taxes that will be paid in the future by the taxpayers of Sonoma County will likewise be paid into this sinking fund; and WHEREAS pursuant to the Second Amended Offpeak Water Supply Agreement Marin has paid Agency a Russian River Conservation Charge, the proceeds of which were in the past paid into the sinking fund described in the previous recital; and

WHEREAS Agency entered into a contract with Marin dated October 22, 1991 and entitled Agreement for the Sale of Water between the Sonoma County Water Agency and the Marin Municipal Water District (now referred to as the "Water Sale Agreement"), which provides for the delivery to Marin by Agency, under prescribed terms and conditions, of up to 10,000 acre-feet of water per fiscal year; and

WHEREAS, Agency and Marin entered into a Supplemental Water Supply Agreement dated January 25, 1996, which amended and

incorporated two agreements between the Agency and Marin that are attached as exhibits to the Supplemental Water Supply Agreement, those agreements being known as the Third Amended Offpeak Water Supply Agreement and the Amended Agreement for the Sale of Water between the Sonoma County Water Agency and Marin Municipal Water District, to accommodate the Agency's efforts to attempt to ensure a continuation of the Pacific Gas and Electric Company's historic diversions of Eel River water to the Russian River and to increase the reliability of the water supply deliverable to Marin; and

WHEREAS, the Third Amended Offpeak Water Supply Agreement by its terms remain in effect until June 30, 2015 as provided in the Amendment To and Temporary Extension of the Supplemental Water Supply Agreement between Marin and the Agency dated June 27, 2014; and

WHEREAS, Marin has requested that the Third Amended Offpeak Water Supply Agreement be renewed.

NOW, THEREFORE, the parties hereto agree as follows:

1. Subject to all the terms and conditions of this Offpeak Agreement and the relevant provisions of the Restructured Agreement for Water Supply, Agency shall deliver water to Marin either through separately metered turnout at Agency's Kastania Reservoir or through North Marin's meter(s) at Marin's option. Should Marin desire a separate metered turnout, it shall pay to Agency the actual cost of installation of such metered turnout. Such water shall be made available to Marin in an amount not to exceed 4,300 acre feet per fiscal year and at delivery rates as requested by Marin but not to exceed 760 acre feet per calendar month. During the five

month period May 1 through September 30 the delivery rate shall not exceed 360 acre feet per calendar month without the prior written consent of the Agency and the total quantity of water delivered shall not exceed 1,800 acre feet. "Fiscal year" means the year beginning on July 1 and ending on the following June 30.

2. Marin shall pay for water delivered pursuant to this Offpeak Agreement at a rate equal to the highest rate per acre-foot then charged by the Agency to any party to the Restructured Agreement for Water Supply (or pursuant to any amendment or successor agreement to the Restructured Agreement for Water Supply) for water taken from either the Petaluma Aqueduct or the Santa Rosa Aqueduct, multiplied by 1.11; provided, however, that the 20% surcharge imposed on the Town of Windsor under Section 4.17(a) of the Restructured Agreement shall not be included in determining the highest rate per acre-foot for water taken from the Santa Rosa Aqueduct or Petaluma Aqueduct. Seven and four hundred thirty-two one-thousandths percent (7.432%) of this per-acre-foot charge shall be placed in the Russian River Projects Fund; two and four hundred seventy-seven thousandths percent (2.477%) of this per-acre-foot charge shall be used, at the discretion of the Agency, to pay for the costs of Common Facilities, to pay the Capital Costs of Aqueduct Facilities relating to the Santa Rosa or Petaluma Aqueducts, or to pay operations and maintenance costs; and the remainder shall be applied pursuant to the Restructured Agreement for Water Supply (or pursuant to any amendment or successor agreement to the Restructured Agreement for Water Supply), with the water delivered to Marin considered to be delivered from the Petaluma Aqueduct. Agency shall bill Marin monthly for the quantity of water

measured from Marin's metered turnout or from the accounting provided by North Marin and Marin shall pay the amount of such billing within 30 days after receipt of the bill. Notwithstanding any dispute between Agency and Marin, Marin shall pay all its bills when due and shall not withhold all or any part of any payment pending the final resolution of such dispute. In the event of a dispute, Marin may pay its bills under protest and if the resolution of the dispute results in a refund to Marin, Agency shall make refund plus any interest earned by investment of the disputed funds.

3. If the total amount of water delivered to Marin pursuant to this Offpeak Agreement is less than 4,300 acre-feet in any fiscal year, then Agency shall include in the bill for the month of July the difference between the actual amount of water delivered during the previous fiscal year and 4,300 acre-feet, and Marin shall pay for such amount at the same rate as though such water had been delivered, if and to the extent that such water was available to Marin. Water shall be deemed to have been available to Marin during the previous fiscal year if Marin could have taken delivery of such water at any time during such fiscal year at delivery rates not exceeding the rates specified in Section 1 of this Offpeak Agreement. Agency shall keep and make available for review by Marin operating records indicating the availability of water to Marin.

4. Except as otherwise provided herein, Agency shall release water from storage in Lake Mendocino or Lake Sonoma when necessary to make available in the Russian River sufficient water to make the deliveries provided for herein. If by reason of drought or other physical cause or legal impediment beyond the control of the Agency, a shortage in the water

available from the Russian River or the Russian River Project occurs, then Agency shall not be liable to Marin for any damage resulting therefrom.

In the event of shortage of water in the Russian River or the Russian River Project that requires the Agency to apportion available water, Agency shall apportion the available water so that it may make deliveries as follows:

First, Agency shall deliver to each of its regular customers, not in excess of the respective entitlements set forth in Sections 3.1, 3.2 and 3.3 of the Restructured Agreement for Water Supply or any amendments or successor agreements thereto, authorize Agency's Russian River customers to divert or redivert not in excess of the amounts for which those customers have contracted to purchase from the Agency, and deliver to Marin not in excess of the amounts set forth in Section 1 of this Offpeak Agreement and paragraph (f) of Section 8 of the Water Sale Agreement, the quantities of water required by each for human consumption, sanitation and fire protection, as determined by the Agency after taking into consideration all other sources of potable water then available to said customer;

Second, to the extent additional water is available to the Agency, Agency shall deliver such water to Agency's regular customers, authorize Agency's Russian River customers, to divert or redivert such water and deliver such water to Marin in proportion to the respective entitlements set forth in Sections 3.1, 3.2 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements, thereto, the agreements between the Agency and its Russian River customers, and Section 1 of this Offpeak Agreement and paragraph (f) of Section 8 of the Water Sale Agreement, provided, however, that no customer shall receive under subdivisions "First" and "Second" hereof a total quantity of water in

excess of its reasonable requirements or its said entitlement or contracted amount, whichever is less.

Agency shall make all reasonable efforts to deliver water to Marin at Kastania Reservoir or at North Marin's meter, as specified in Section 1 of this Offpeak Agreement, using all facilities available to Agency. However, Marin acknowledges that priorities of use of delivery capacity in Agency's facilities have been allocated to others who are not parties to this Offpeak Agreement, and that capacity to make deliveries of water to Marin at the rates in Section 1 of this Offpeak Agreement may not always be available to Agency. Agency shall keep, and make available to Marin on an annual basis in July of each year, records indicating the availability of capacity to deliver water to Marin, up to the limits set forth in Section 1 of this Offpeak Agreement and in Section 2 of the Water Sale Agreement, for each month of the previous fiscal year. During July of each year, Agency also shall provide Marin with an estimate of the capacity that will be available to deliver water to Marin pursuant to this Offpeak Agreement and the Water Sale Agreement during each remaining month of the then present fiscal year. If these reports indicate that delivery capacity is insufficient, or soon will be insufficient, to provide deliveries at the rates specified in Section 1 of this Offpeak Agreement, then Agency shall use its best efforts to secure an alternative means, solely at Marin's expense, to accomplish the purposes of this Offpeak Agreement.

In the event of an impairment of or limitation on the use or capacity of the Transmission System, or other facility that affects the Agency's ability to deliver water to Marin pursuant to this Offpeak Agreement, by reason of natural disaster, sabotage, legal impediment or other cause beyond the control of the Agency, the Agency shall not be liable to Marin for any damage

arising therefrom. In such event, the Agency shall use the available Transmission System capacity to make deliveries as follows:

First, deliver to each of its regular customers the quantity of water, not in excess of its respective entitlement set forth in Sections 3.1 and 3.2 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, required by it for human consumption, sanitation and fire protection as determined by the Agency after taking into consideration all other sources of potable water then available to said customer;

Second, to the extent additional Transmission System capacity is available to the Agency, deliver a quantity of water to the regular customers in proportion to their respective entitlements set forth in Section 3.1 and 3.2 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, provided, however, that no regular customer shall receive under the paragraphs "first" and "second" a total quantity of water in excess of its reasonable requirements or its said entitlement, whichever is less;

Third, to the extent additional Transmission System capacity is available, deliver water to regular customers in excess of their entitlements, pursuant to section 3.3 of the Restructured Agreement for Water Supply;

Fourth, to the extent additional Transmission System capacity is available, deliver water to Marin Municipal Water District, not in excess of the delivery limitations in Section 1 of this Offpeak Agreement;

Fifth, to the extent additional Transmission System capacity is available, deliver surplus water to the water contractors;

Sixth, to the extent additional Transmission System capacity is available, delivery surplus water to other Agency customers;

The terms "regular customers", "Russian River customers" and "water contractors" in this Offpeak Agreement shall have the same meanings that they have in the Restructured Agreement for Water Supply.

5. In addition to the rates and charges required to be paid by Marin pursuant to Section 2 hereof, Marin shall pay the following additional charges on or before each September 30 during the term of this Offpeak Agreement.

a. Marin shall pay a Russian River Conservation Charge in lieu of the property taxes levied by the Agency on property in Sonoma County, to pay the capital, operation and maintenance costs associated with the Warm Springs Dam Project. The Russian River Conservation Charge shall be a charge per acre foot which shall be applied to Marin's total 4,300 acre feet per annum entitlement under this Offpeak Agreement. The charge shall be determined annually on or before April 30 preceding each September 30. The Russian River Conservation Charge shall be determined by multiplying the tax rate levied by the Agency in the then current fiscal year to pay the costs associated with the Warm Springs Dam Project times the total assessed value of secured and unsecured property situated within the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Forestville County Water District, and the Valley of the Moon Water District, and dividing the product by the total number of acre feet of water delivered to said public agencies pursuant to Section 3.1 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, during the twelve month period ending on March 31.

b. Marin shall pay a Russian River Projects Charge in lieu of the property taxes levied on property in Sonoma County and other Agency

general fund monies which are transferred by the Agency to the Agency's Russian River Projects Fund and expended to pay for or partially pay for: (1) carrying out the Agency's Coyote Valley Dam Project and Warm Springs Dam Project channel-stabilization works obligations to the United States Government and the State of California under Agency Board of Directors Resolutions No. 6847 adopted May 24, 1955, No. 7798 adopted September 27, 1955, No. DR00793-1 adopted September 25, 1961 and Resolution No DR68485 adopted December 23, 1980; (2) securing and defending appropriative water rights which are necessary for the realization of the full benefits of the Coyote Valley Dam and Warm Springs Dam Projects; (3) the Agency's share of the United States Government's investment, operation and maintenance costs associated with the Coyote Valley Dam and Warm Springs Dam Projects; (4) the acquisition of all or part of the Potter Valley Project, or contributions made to the Project owner to insure the continued operation of all or part of the Project; and (5) fishery mitigation and enhancement projects undertaken by the Agency in the Russian River and Eel River and their tributaries. The Russian River Projects Charge shall be determined by dividing the total amount of Agency monies expended from the Agency's Russian River Projects Fund in the preceding ten fiscal years, exclusive of the funds contributed to the Fund by Marin and North Marin Water Districts and interest earnings attributable to funds contributed by Marin and North Marin Water District, by the sum of the total acre-feet of water delivered by the Agency to the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa, and Sonoma, the Forestville County Water District, and the Valley of the Moon Water District pursuant to Section 3.1 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, during the preceding ten

fiscal years and multiplying the quotient by the ratio that the assessed value of secured and unsecured property situated within the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Forestville County Water District, and the Valley of the Moon Water District bears to the assessed value of all secured and unsecured property within Sonoma County, provided, however, in no event shall the Russian River Projects Charge exceed \$20.00 per acre-foot. Agency shall keep proper books, records and accounts in which complete and accurate entries shall be made of all Agency general fund monies transferred to the Agency's Russian River Projects Fund and all expenditures made from the fund for the purposes described in this paragraph. The Agency shall maintain a separate account within the Russian River Projects Fund for monies contributed by Marin and North Marin Water District. Monies expended from the Russian River Projects Fund shall be deemed to have been expended from the Marin and North Marin Water District account in the proportion that the balance of the account bears to the total Russian River Projects Fund balance at the end of the fiscal year quarter preceding the expenditure.

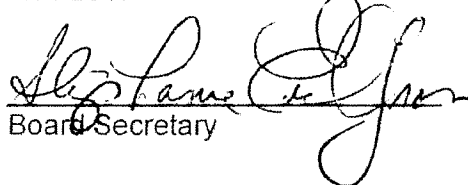
c. All money received by the Agency from the Russian River Conservation Charge and the Russian River Projects Charge on water sold to Marin shall be credited to the Agency's Russian River Projects Fund and shall be used only for the purposes set forth in Paragraph (b) of this section.

6. The annual quantity of water provided to Marin by Agency pursuant to this Offpeak Agreement shall be in addition to the annual quantity of water provided to Marin by Agency pursuant to the Sale of Water Agreement.

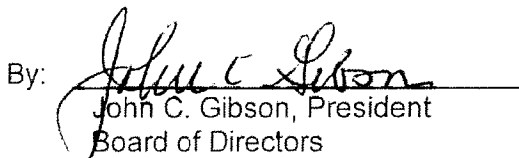
7. This Offpeak Agreement supersedes the Third Amended Offpeak Water Supply Agreement between Marin and Agency. This Offpeak Agreement shall be effective on July 1, 2015 and shall remain in effect until June 30, 2025. Upon the request of Marin, Agency agrees to enter into renewal agreements for periods not to exceed the then-existing term of the Restructured Agreement for Water Supply or any renewals, amendments or replacement agreements to the Restructured Agreement for Water Supply upon the same terms and conditions contained in this Offpeak Agreement, except that the Agency may make reasonable adjustments to the charges under Section 5 of this Offpeak Agreement, and any such reasonable adjustments then shall be included in any renewal agreement. If the Restructured Agreement for Water Supply has been terminated or has expired without being renewed, amended or replaced by another agreement pertaining to water supply, then upon the request of Marin, the Agency shall enter into renewal agreements for periods not to exceed forty (40) years upon the same terms and conditions contained in this Offpeak Agreement, except that the Agency may make reasonable adjustments to the charges under Section 5 of this Offpeak Agreement and any such reasonable adjustment then shall be included in any renewal agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date hereinabove first written.

ATTEST:


Board Secretary

MARIN MUNICIPAL WATER DISTRICT

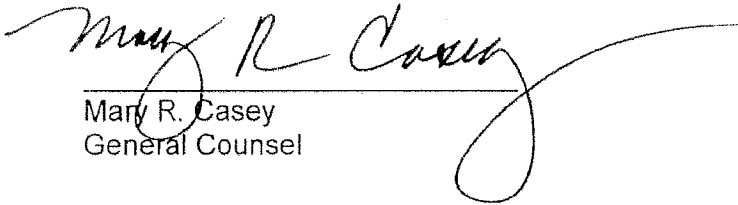
By: 
John C. Gibson, President
Board of Directors

Reviewed As To Substance By
Marin Municipal Water District



Krishna Kumar
General Manager

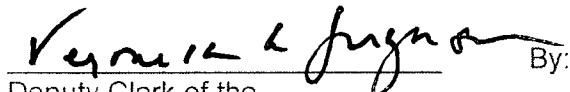
Reviewed As To Form:



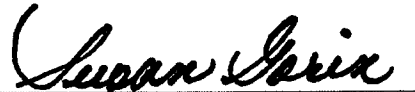
Mary R. Casey
General Counsel

ATTEST:

SONOMA COUNTY WATER AGENCY


Deputy Clerk of the
Board of Directors

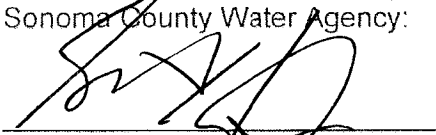
By:


Chair, Board of Directors

DATE:

6/16/15

Reviewed As To Substance By
Sonoma County Water Agency:



Grant Davis, General Manager

Reviewed As To Form:



Steven S. Shupe
Deputy County Counsel

Exhibit B**Amendments to Amended Agreement for the Sale of Water between
the Sonoma County Water Agency and Marin Municipal Water District****SECOND AMENDED AGREEMENT FOR THE SALE OF
WATER BETWEEN THE SONOMA COUNTY WATER
AGENCY AND THE MARIN MUNICIPAL WATER
DISTRICT**

This agreement is made this 22nd day of October, 1991, and is amended and effective this July 1, 2015, by and between the Sonoma County Water Agency, hereinafter called "Agency," and the Marin Municipal Water District, hereinafter called "District" hereinafter ("Water Sale Agreement.")

RECITALS

A. District operates a municipal water system to supply water to customers within its boundaries. District's water system is supplied by water from reservoirs owned and operated by District, and by water purchased from Agency pursuant to Fourth Amended Offpeak Water Supply Agreement ("Offpeak Agreement") and this Water Sale Agreement.

B. District and Agency now wish to revise this Water Sale Agreement to accommodate the Agency's effort to attempt to ensure a continuation of the Pacific Gas and Electric Company's historic diversions of Eel River water to the Russian River and to increase the reliability of the water supply deliverable to District.

C. The Coyote Valley Project was authorized by the Flood Control Act of 1950 (Pub. L. No. 81-516), and was completed by the U. S. Army Corps of Engineers in 1958. This project includes Lake Mendocino, which has a capacity of 122,500 acre-feet, of which 70,000 acre-feet is allocated to storage for water supply.

D. In 1955, Agency (then called the "Sonoma County Flood Control and Water Conservation District") sold general obligation bonds to raise \$5,650,000, which it then paid to the United States for the reimbursable costs of the water-storage element of the Coyote Valley Project. Parts of the property taxes paid since 1955 by the taxpayers of Sonoma County have been used to make payments on these bonds.

E. The Warm Springs Dam Project was authorized by the Flood Control Act of 1962 (Pub. L. No. 87-874), and was completed by the United States Army Corps of Engineers in 1984. This project includes Lake Sonoma, which has a capacity of 381,000 acre-feet, of which 212,000 acre-feet is allocated to storage for water supply.

F. Agency contracted with the United States to make annual payments to the United States for portions of the construction, operation, maintenance, major-replacement and major-rehabilitation costs of the Warm Springs Dam Project. Parts of the property taxes paid since 1971 by the taxpayers of Sonoma County have been paid into a sinking fund that was established to fund Agency's payment obligations to the United States for this project. Parts of the property taxes that will be paid in the future by the taxpayers of Sonoma County will likewise be paid into this sinking fund.

G. Pursuant to the Restructured Agreement for Water Supply, the North Marin Water District has paid Agency a Russian River Conservation Charge. Pursuant to the Offpeak Water Supply Agreement and its two amendments, District also has paid Agency a Russian River Conservation Charge. The proceeds of these payments were in the past paid into the sinking fund described in the preceding paragraph.

H. Agency currently utilizes the Transmission System to supply water to the Water Contractors and some of Agency's Other Customers and Contractors pursuant to the Restructured Agreement for Water Supply and other agreements. Payments made by the Water Contractors pursuant to the Restructured Agreement for Water Supply were and are being used to fund payments on the bonds sold to finance the construction of parts of the Transmission System and to fund directly the construction of other parts of the Transmission System.

I. Some of Agency's Other Customers and Contractors divert water purchased from Agency directly from the Russian River.

J. Agency holds Permits 12947A, 12949, 12950 and 16596, which were issued by the State Water Resources Control Board and its predecessors pursuant to Applications 12919A, 12920A, 15736, 15737 and 19351. These permits authorize Agency to divert Russian River water, and to redivert water previously stored in Lake Mendocino and Lake Sonoma, subject to specified terms and conditions.

K. On July 3, 1975, Agency and District entered into an agreement entitled, "Offpeak Water Supply Agreement." Agency and

District amended that agreement on August 28, 1984, May 3, 1988, January 25, 1995, and June 27, 2014. That agreement, now entitled "Fourth - Amended Offpeak Water Supply Agreement" and referred to herein as the "Offpeak Agreement" provides for Agency to deliver up to 4,300 acre-feet of water per year pursuant to Permits 12947A, 12949, 12950 and 16596, subject to specified terms and conditions.

L. In June 1980, Agency certified its final environmental impact report on Proposed Amendments of Permits on Applications 12919A, 15736, 15737 and 19351. In July 1984, Agency certified its supplemental environmental impact report covering Proposed Coordinated Use of the Water Supply of Lake Mendocino and Lake Sonoma, Russian River Project. On November 14, 1990, District certified its Water Supply Plan Program Final Environmental Impact Report. On September 24, 1991, District certified its Water Supply Project Final Environmental Impact Report. These reports together satisfy the environmental-impact-report requirements of the California Environmental Quality Act for this Water Sale Agreement.

M. Agency's January 1991 "Urban Water Management Plan" concluded that Agency's direct-diversion rights and its share of the Coyote Valley and Warm Springs Dam Projects together will have yield sufficient to supply District with additional water according to the terms of this Water Sale Agreement.

N. Agency has the capacity to produce water from groundwater wells and intends, if authorized by an amendment to the Restructured Agreement for Water Supply, to develop additional emergency groundwater wells, aquifer storage and recovery wells or other offstream

water-production facilities, to improve the reliability of the delivery capacity of the Transmission System.

O. At the present time and under normal circumstances, the Transmission System has excess capacity that may be used by Agency to supply District with water pursuant to this Water Sale Agreement. In order for the Transmission System in the future to continue to have such excess capacity under normal circumstances, Agency will need to construct elements of a new aqueduct from the Russian River to the Ely Pumping Plant, roughly paralleling portions of the existing Cotati Intertie and Petaluma Aqueduct, at an earlier date than would be necessary absent this Water Sale Agreement, and Agency will need to construct a new aqueduct from the Ely Pumping Plant to Kastania Reservoir, roughly paralleling portions of the existing Petaluma Aqueduct, which would not be necessary absent this Water Sale Agreement.

P. Agency and District entered into a Supplemental Water Supply Agreement dated January 25, 1996, which amended and incorporated two agreements between the Agency and MMWD that are attached as exhibits to the Supplemental Water Supply Agreement, the Third Amended Offpeak Water Supply Agreement and the Amended Agreement for the Sale of Water between the Sonoma County Water Agency and Marin Municipal Water District. The Amended Agreement for the Sale of Water by its terms remain in effect until June 30, 2015 as provided in the Amendment To and Temporary Extension of the Supplemental Water Supply Agreement between MMWD and the Agency dated June 27, 2014.

Q. District has requested that the Third Amended Offpeak Water Supply Agreement be renewed. Agency is willing to sell water to District,

and District is willing to purchase such water from Agency, pursuant to the terms and conditions of this Water Sale Agreement.

NOW, THEREFORE, in consideration of these recitals and the mutual promises made herein, Agency and District agree as follows:

Section 1. Definitions.

When used in this Water Sale Agreement, unless otherwise distinctly expressed or manifestly incompatible with the intent of this Water Sale Agreement, the following terms shall have the following meanings:

a. "Restructured Agreement for Water Supply" means the agreement between Agency and the Water Contractors entitled Restructured Agreement for Water Supply, executed on June 25, 2006.

b. "Fiscal Year" means each year that begins on July 1 and ends on the following June 30.

c. "Maximum Delivery Limit" means the maximum amount of water that Agency is required to deliver and that District may take pursuant to this Water Sale Agreement in any Fiscal Year, and which is described in Section 4 of this Water Sale Agreement.

d. "Other Customers and Contractors" means the North Marin Water District and all present and future Agency customers within Sonoma County, including all entities within Sonoma County that receive or will receive water from the Transmission System or other water conveyance facilities, and all entities within Sonoma County that divert or will divert water purchased from Agency directly from the Russian River or Dry Creek.

e. "Permits 12947A, 12949, 12950 and 16596" mean water rights permits 12947A, 12949, 12950 and 16596, which the State Water Resources Control Board and its predecessors issued to Agency pursuant

to Applications 12919A and 12920A, 15736, 15737 and 19351, as such permits now exist or in the future may exist (including any licenses that may be issued to replace these permits).

f. "Prudent Storage Reserve" means a quantity of water in storage in Lake Sonoma, Lake Mendocino and Lake Pillsbury sufficient to assure both that the level of Lake Sonoma would not drop below 292 feet and the level of Lake Mendocino would not drop below 685 feet, with reference to the National Geodetic Vertical Datum of 1929, during the fall of the calendar year following the calendar year in which the determination of availability is made under Section 7 of this Water Sale Agreement, if the most severe hydrologic period of record were to recur.

g. "Russian River Conservation Charge" means the charge that District pays and will pay Agency in lieu of the property taxes levied by the Agency on property in Sonoma County to pay the capital, operation and maintenance costs associated with the Warm Springs Dam Project, and which is described In Section 10 of this Water Sale Agreement.

h. "Russian River Projects Charge" means the charge which is described in Section 10 of this Water Sale Agreement that the District will pay Agency in lieu of the property taxes levied on property in Sonoma County and other Agency general fund monies which are transferred by the Agency to the Agency's Russian River Projects Fund and expended to pay for or partially pay for: (1) carrying out the Agency's Coyote Valley Dam Project and Warm Springs Dam Project channel-stabilization works obligations to the United States Government and the State of California under Agency Board of Directors Resolutions No. 6847 adopted May 24, 1955, No. 7798 adopted September 27, 1955, No. DR00793-1 adopted September 25, 1961 and Resolution

No. DR68485 adopted December 23, 1980; (2) securing and defending appropriative water rights which are necessary for the realization of the full benefits of the Coyote Valley Dam and Warm Springs Dam Projects; (3) the Agency's share of the United States Government's investment, operation and maintenance costs associated with the Coyote Valley Dam and Warm Springs Dam Projects; (4) the acquisition of all or part of the Potter Valley Project, or contributions made to the Project owner to insure the continued operation of all or part of the Project; and (5) fishery mitigation and enhancement projects undertaken by the Agency in the Russian River and Eel River and their tributaries.

i. "Offpeak Agreement" means the July 1, 2015 agreement between Agency and District that is described in recital K of this Water Sale Agreement.

j. "Transmission System" means the water-supply facilities financed and constructed pursuant to the Restructured Agreement for Water Supply and its predecessor agreements, including the remaining features of the Russian River-Cotati Intertie authorized by the Restructured Agreement for Water Supply but not yet constructed.

k. "Water Contractors" means the Cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Town of Windsor, the Valley of the Moon Water District, and the North Marin Water District.

Section 2. Agency Deliveries of Water to District.

Subject to all of the terms and conditions of this Water Sale Agreement, and subject to all relevant present and future provisions of the Restructured Agreement for Water Supply, District may purchase water from Agency pursuant to this Water Sale Agreement in any Fiscal Year in an

amount not to exceed either 10,000 acre-feet or the District's Maximum Delivery Limit for that Fiscal Year. Upon request by District and subject to all of the terms of this Water Sale Agreement, Agency shall make such water available to District at Agency's Kastania Reservoir at delivery rates specified by District, but not to exceed rates calculated by dividing the District's Maximum Delivery Limit by 10,000 acre feet and multiplying this quotient by the following amounts: (a) 9 million gallons per day between May 1 and October 31 of each year; (b) 12 million gallons per day during the months of April and November of each year; and (c) 15 million gallons per day during all other times.

To the extent permissible under the Offpeak Agreement, the first 360 acre-feet of water received by District from Agency in any month shall be accounted for as being received pursuant to that agreement.

District may not receive any water pursuant to this Water Sale Agreement in any month unless or until one of the following two events has occurred: (1) District already has received in that month at least 360 acre-feet pursuant to the Offpeak Agreement; or (2) District already has received in that Fiscal Year the maximum amount of water that it may receive pursuant to that Offpeak Agreement.

Section 3. Meter, Connections and Delivery.

Agency will install a turnout, a meter, and appropriate appurtenances at its Kastania Reservoir so that the water delivered to District pursuant to this Water Sale Agreement may be accurately measured and delivered to District's water system. District shall take delivery of water purchased from Agency pursuant to this Water Sale Agreement immediately after the water has passed through this meter.

After installation of this turnout, meter and appurtenances, Agency shall bill District for their cost. District shall pay Agency the amount of this bill within 30 days after receipt of the bill.

Agency shall keep accurate records of the amounts of water delivered to District at this meter, and shall allow District to inspect these records during regular business hours.

Section 4. Maximum Delivery Limit.

a. In the Fiscal Year commencing July 1, 1995, District's Maximum Delivery Limit shall be 5,000 acre-feet. If District takes delivery of, or makes payments in lieu of delivery pursuant to Section 5 of this Water Sale Agreement for, at least 90 percent of the Maximum Delivery Limit in any Fiscal Year, then its Maximum Delivery Limit for the following Fiscal Year shall be increased by 1,000 acre-feet, but never to exceed 10,000 acre-feet.

b. Beginning with the Fiscal Year immediately following District's completion of transmission facilities sufficient to take delivery of at least 5,000 acre-feet of water pursuant to this Water Sale Agreement, or with the July 1, 1996 to June 30, 1997 Fiscal Year, whichever occurs first, if District does not take delivery pursuant to this Water Sale Agreement of, or make payments in lieu of delivery for, at least 90 percent of its Maximum Delivery Limit in any Fiscal Year, then District's Maximum Delivery Limit for the following Fiscal Year shall be decreased by 1,000 acre-feet, except:

The Maximum Delivery Limit shall not decrease for the Fiscal Year following any Fiscal Year in which District requests delivery of at least 90 percent of the Maximum Delivery Limit and either (1) Agency determines,

pursuant to Section 7 of this Water Sale Agreement, that less than 90 percent of the Maximum Delivery Limit is available; or (2) Agency determines pursuant to Section 9 of this Water Sale Agreement that Transmission System capacity will not be available to deliver District pursuant to this Water Sale Agreement at least 90 percent of the Maximum Delivery Limit.

Section 5. Payments In Lieu of Delivery.

District may elect to make payments to Agency in lieu of delivery to prevent any reduction of District's Maximum Delivery Limit for the following Fiscal Year.

Within 10 days after the end of any month in which District makes such an election, it shall notify Agency in writing of the number of acre-feet for which District elects to make payments in lieu of delivery. The total of this number of acre-feet plus the number of acre-feet of water actually delivered during the month pursuant to this Water Sale Agreement shall not exceed the volume equal to the number of days in the month times the applicable maximum daily delivery limit specified in Section 2 of this Water Sale Agreement. If at the end of May of any fiscal year District has not taken delivery pursuant to this Water Sale Agreement of at least 172 acre-feet of water during the fiscal year, District shall be deemed to have elected to make a payment in lieu of delivery during the month of May for the difference between 172 acre-feet and the amount of water for which delivery already has been taken, or for which payments in lieu of delivery already have been made, pursuant to this Water Sale Agreement. If at the end of June of any fiscal year District has not taken delivery pursuant to this Water Sale Agreement of at least 1000 acre-feet of water during the fiscal year, District

shall be deemed to have elected to make a payment in lieu of delivery during the month of June for the difference between 1000 acre-feet and the amount of water for which delivery already has been taken or payments in lieu of delivery already have been made, pursuant to this Water Sale Agreement.

After receipt of such notice from District, and in instances when District shall be deemed to have elected to make payments in lieu of deliveries, Agency shall bill District for the appropriate number of acre-feet at the rate determined pursuant to Section 10 of this Water Sale Agreement, less Agency's estimated average, system wide per-acre-foot costs (as calculated by Agency) for the energy and chemicals necessary to operate the Transmission system during the preceding month. When the actual average, system wide per-acre-foot costs (as calculated by Agency) for the energy and chemicals necessary to operate the Transmission System during any month in which District has elected to make payments in lieu of delivery are known, Agency shall make an appropriate adjustment to the amount previously billed to District pursuant to this section, and credit or debit the District for the adjustment.

District shall pay the amount of each bill made pursuant to this section within 30 days after receipt of the bill. No such billing or payment shall affect District's obligations to make payments to Agency pursuant to any other section of this Water Sale Agreement.

In calculating District's Maximum Delivery Limit for the following Fiscal Year, Agency shall add to the amount of water that District received pursuant to this Water Sale Agreement during the current Fiscal Year the number of acre-feet for which District made such payments in lieu of delivery during the current Fiscal Year.

Section 6. Annual Request by District.

On or before May 1 of each year, District shall submit a written request to Agency, stating the amount of water that District requests to purchase pursuant to this Water Sale Agreement and the Offpeak Agreement during the following Fiscal Year.

Section 7. Availability.

Except as otherwise provided in Section 8 of this Water Sale Agreement, water shall be deemed to be available for sale by Agency to District pursuant to this Water Sale Agreement if Agency has water in excess of the amounts that it needs to supply all of its Other Customers and Contractors, to meet its obligations under the Offpeak Agreement, to meet its obligations under any contract between Agency and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in existence on October 22, 1991, to meet its obligations to appropriative water rights owners, to meet instream flow requirements, and to maintain a Prudent Storage Reserve, considering hydrologic conditions, Agency's offstream water production capacity, the probable effects of water conservation efforts on water demand and other relevant factors.

On or before March 1 of each year, Agency shall estimate the amount of water that will be available during the next Fiscal Year for sale to District pursuant to this Water Sale Agreement, and advise the District of this estimate. On or before June 1 of each year, Agency shall, to the extent that it can, make a final determination of the amount of water that will be available the next Fiscal Year for sale to District pursuant to this Water Sale Agreement, and advise the District of this amount.

If Agency notifies District pursuant to this section on March 1 of any year that the amount of water that will be available for delivery by Agency to District pursuant to this Water Sale Agreement during the following Fiscal Year will be less than District's Maximum Delivery Limit for that following Fiscal Year, then District may elect in writing to defer until July, August, September or October of the following Fiscal Year delivery of up to one-half of the undelivered water that District otherwise would be entitled to receive pursuant to this Water Sale Agreement during the current Fiscal Year. If District makes such an election, then none of the maximum daily delivery limits specified in Section 2 of this Water Sale Agreement shall be exceeded by the total of all water delivered by Agency to District pursuant to this Water Sale Agreement. If District makes such an election and receives the deferred-delivery water during the following Fiscal Year, then for the purposes of Section 4 of this Water Sale Agreement such water shall be treated as if District had taken delivery of it during the current Fiscal Year.

Section 8. Firm Water Supply.

a. No later than July 31, 1996, District shall pay to the Agency a lump sum representing a share of the Warm Springs Dam sinking fund and principal payments made to the United States Government by Agency for Lake Sonoma water storage space corresponding to 5,000 acre-feet per annum of the 75,000 acre-feet per annum net firm yield of the Warm Springs Dam Project.

b. At any time that is after District has made the payment described in paragraph (a) of this section and prior to July 1, 2005 District shall have the option to pay to the Agency a lump sum representing a share of the Warm Springs Dam sinking fund and principal payments made to the United

States Government by Agency for Lake Sonoma water storage space corresponding to an additional 5,000 acre-feet per annum of the 75,000 acre-feet per annum net firm yield of the Warm Springs Dam Project.

c. The amount of the lump sum payments referred to in paragraphs (a) and (b) of this section shall be determined by the following formula:

$$C = (A + B) \times O / (75,000 \text{ acre-feet} - O)$$

In this formula *C* is the lump sum payment representing a share of the Warm Springs sinking fund corresponding to an additional 5,000 acre-feet per annum of the 75,000 acre-feet per annum net firm yield of the Warm Springs Dam Project; *A* is the balance of cash and market value of investments held by the Agency's Warm Springs Dam Sinking fund on the last day of the fiscal year quarter immediately preceding the date of the payment provided for in paragraph (a) or (b) of this section; *B* is the total amount of the principal payments which have been made by the Agency to the United States Government for water storage space in Lake Sonoma as of the date of the payment provided for in paragraph (a) or (b) of this section; and *O* is the 5,000 acre-feet of annual firm water to be made available to MMWD pursuant to paragraphs (a) or (b) of this section.

d. In lieu of the determination of availability provided for in Section 7 of this Water Sale Agreement, Agency shall release water from storage in Lake Mendocino or Lake Sonoma when necessary to make available in the Russian River sufficient water to make deliveries of the first 5,000 acre-feet per annum of water provided for by this Water Sale Agreement, but subject to the provisions of paragraph (f) of this section.

e. If District makes the payment pursuant to paragraph (b) of this section, then in lieu of the determination of availability provided for in Section 7 of this Water Sale Agreement, Agency shall release water from storage in

Lake Mendocino or Lake Sonoma when necessary to make available in the Russian River sufficient water to make the deliveries of all the water provided for by this Water Sale Agreement, but subject to the provisions of paragraph (f) of this section.

f. With respect to the releases provided for in paragraphs (d) and (e) of this section, if by reason of drought or other physical cause or legal impediment beyond the control of the Agency, a shortage in the water available from the Russian River or the Russian River Project occurs, then Agency shall not be liable to District for any damage resulting therefrom. In the event of a shortage of water in the Russian River or the Russian River Project that requires the Agency to apportion available water, Agency shall apportion the available water so that it may make deliveries as follows:

First, Agency shall deliver to each of its regular customers, not in excess of the respective entitlements set forth in Sections 3.1, 3.2 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, authorize Agency's Russian River customers to divert or redivert not in excess of the amounts for which those customers have contracted to purchase from the Agency, and deliver to District not in excess of the amounts set forth in Section 1 of the Offpeak Agreement, paragraph (d) of this section, and (if District makes the payment pursuant to paragraph (b) of this section) paragraph (e) of this section, the quantities of water required by each for human consumption, sanitation and fire protection, as determined by the Agency after taking into consideration all other sources of potable water then available to said customer;

Second, to the extent additional water is available to the Agency, Agency shall deliver such water to Agency's regular customers, authorize

Agency's Russian River customers to divert or redivert such water, and deliver such water to the District, in proportion to the respective entitlements set forth in Sections 3.1, 3.2 and 3.3 of the Restructured Agreement For Water Supply, or any amendments or successor agreements thereto, the agreements between the Agency and its Russian River customers, Section 1 of the Offpeak Agreement, paragraph (d) of this section and (if District makes the payment pursuant to paragraph (b) of this section) paragraph (e) of this section, provided, however, that no customer shall receive under subdivisions "First" and "Second" hereof a total quantity of water in excess of its reasonable requirements or its said entitlement or contracted amount, whichever is less.

The terms "regular customers", "Russian River customers" and "water contractors" in this Water Sale Agreement shall have the same meanings that they have in the Restructured Agreement for Water Supply.

Section 9. Delivery Schedule.

Notwithstanding a determination of availability of water pursuant to Section 7 or Section 8 of this Water Sale Agreement, Agency shall be obligated to release water from storage or deliver water to District pursuant to this Water Sale Agreement only to the extent that the Transmission System has capacity in excess of that required by Agency to supply all of its Other Customers and Contractors, and District under the Offpeak Agreement. However, Agency shall not curtail deliveries pursuant to this section because of inadequate capacity in any new Ely-to-Kastania Aqueduct constructed pursuant to Section 13 of this Water Sale Agreement.

On or before June 1 of each year, Agency shall submit a written estimate to District of the capacity of the Transmission System that is

expected to be available to deliver water pursuant to this Water Sale Agreement for each month of the following Fiscal Year. Fifteen days before the first day of each month, District shall notify the Agency of its planned rate of delivery for that month pursuant to this Water Sale Agreement and the Offpeak Agreement. Such notice may be by telephone unless written notice is requested by Agency.

Section 10. Water Charges.

On or before April 30 of each year, Agency shall establish a per-acre-foot water rate applicable to all water delivered pursuant to this Water Sale Agreement for the following Fiscal Year. This rate shall be the sum of the following three per-acre-foot charges:

a. A per acre foot charge equal to the highest rate per acre-foot then charged by the Agency to any party to the Restructured Agreement for Water Supply (or pursuant to any amendment or successor agreement to the Restructured Agreement for Water Supply) for water taken from either the Petaluma Aqueduct or the Santa Rosa Aqueduct, multiplied by 1.11; provided, however, that the 20% surcharge imposed on the Town of Windsor under Section 4.17(a) of the Restructured Agreement shall not be included in determining the highest rate per acre-foot for water taken from the Santa Rosa Aqueduct or Petaluma Aqueduct. Seven and four hundred thirty-two one-thousandths percent (7.432%) of this per-acre-foot charge shall be placed in the Russian River Projects Fund; two and four hundred seventy-seven thousandths percent (2.477%) of this per-acre-foot charge shall be used, at the discretion of the Agency, to pay for the costs of Common Facilities, to pay the Capital Costs of Aqueduct Facilities relating to the Santa Rosa or Petaluma Aqueducts, or to pay

operations and maintenance costs; and the remainder shall be applied pursuant to the Restructured Agreement for Water Supply (or pursuant to any amendment or successor agreement to the Restructured Agreement for Water Supply), with the water delivered to Marin considered to be delivered from the Petaluma Aqueduct.

b. A Russian River Conservation charge which shall be paid in lieu of the property taxes levied by the Agency on property in Sonoma County, to pay the capital, operation and, maintenance costs associated with the Warm Springs Dam Project. The Russian River Conservation Charge shall be determined by multiplying the tax rate levied by the Agency in the then current fiscal year to pay the costs associated with the Warm Springs Dam Project times the assessed value of secured and unsecured property situated within the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Forestville County Water District, and the Valley of the Moon Water District, and dividing the product by the total number of acre-feet of water delivered to said public agencies pursuant to Section 3.1 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, during the twelve month period ending on March 31.

c. A Russian River Projects Charge which shall be paid in lieu of the property taxes levied on property in Sonoma County and other Agency general fund monies which are transferred to the Agency's Russian River Projects Fund and expended for the purposes enumerated in subsection (h) of Section 1. The Russian River Projects Charge shall be determined by dividing the total amount of Agency monies expended from the Agency's Russian River Projects Fund in the preceding ten fiscal years, exclusive of the funds contributed to the Fund by District and North Marin Water District,

and interest earnings attributable to funds contributed by District and North Marin Water District, by the sum of the total acre-feet of water delivered by the Agency to the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Forestville County Water District, and the Valley of the Moon Water District pursuant to Sections 3.1 and 3.3 of the Restructured Agreement for Water Supply, or any amendments or successor agreements thereto, during the preceding ten fiscal years and multiplying the quotient by the ratio that the assessed value of the secure and unsecured property situated within the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa and Sonoma, the Forestville County Water District and the Valley of the Moon Water District bears to the assessed value of all secured and unsecured property within Sonoma County, provided, however, in no event shall the Russian River Projects Charge exceed \$20.00 per acre-foot. Agency shall keep proper books, records and accounts in which complete and accurate entries shall be made of all Agency general fund monies transferred to the Agency's Russian River Projects Fund and all expenditures made from the fund for the purposes described in this paragraph. The Agency shall maintain separate account within the Russian River Projects Fund for monies contributed by District and North Marin Water District. Monies expended from the Russian River Projects Fund shall be deemed to have been expended from the District and North Marin Water District account in the proportion that the balance of that account bears to the total Russian River Projects Fund balance at the end of the fiscal year quarter preceding the expenditure.

Agency shall bill District each month for all of these charges, based on the quantity of water delivered to District pursuant to this Water Sale

Agreement during the preceding month. District shall pay the amount of each such billing within 30 days after receipt of the bill.

If in any fiscal year the sum of the total amount of water delivered under this Water Sale Agreement plus the total amount of water for which payments are made in lieu of delivery pursuant to Section 5 of this Water Sale Agreement is less than the total amount of water for which District has made firm water supply payments pursuant to subsections (a) and (b) of Section 8 of this Water Sale Agreement, District shall pay the following additional payments:

d. An additional lump sum payment which shall be determined by multiplying the Russian River Conservation Charge times the difference between the total acre-feet of water for which District has made firm water supply payments pursuant to subsections (a) and (b) Section 8 of this Water Sale Agreement and the sum of the total acre-feet of water delivered under this Water Sale Agreement during the prior fiscal year plus the total acre-feet of water for which payments have been made in lieu of delivery pursuant to Section 5 of this Water Sale Agreement during the prior fiscal year.

e. An additional lump sum payment which shall be determined by multiplying the Russian River Projects Charge times the difference between the total acre-feet of water for which District has made firm water supply payments pursuant subsection (a) and (b) of Section 8 of this Water Sale Agreement and the sum of the total acre-feet of water delivered under this Water Sale Agreement during the prior fiscal year plus the total acre-feet of water for which payments have been made in lieu of delivery pursuant to Section 5 of this Water Sale Agreement during the prior fiscal year.

Agency shall bill District for these additional lump sum payments within 30 days after the end of each fiscal year. District shall pay the amount of each such billing within 30 days after receipt of the bill.

Section 11. Payment.

Notwithstanding any dispute between Agency and District, District shall pay all bills made by Agency pursuant to this Water Sale Agreement when due and shall not withhold all or any part of any amount billed pending the final resolution of such dispute. In the event of a dispute, District may pay its bills under protest, and if necessary under the ultimate resolution of the dispute, Agency shall make an appropriate refund to District, including interest on the overpaid amount at the rate obtained by Agency as a result of investment of the disputed amount. If District does not pay any bill by the due date for such bill, then, in addition to the principal amount due, District also shall pay Agency interest on this principal amount due, calculated from the due date until the payment date at the legal rate per annum established pursuant to Section 685.010 of the Code of Civil Procedure.

Section 12. Acceleration of Construction of New Aqueduct Elements.

If the financing and construction by Agency of a new aqueduct from the Russian River to the Ely Pumping Plant, roughly paralleling portions of the existing Cotati Intertie and Petaluma Aqueduct, is authorized by an amendment to the Restructured Agreement for Water Supply or successor agreement, then Agency shall annually provide District with a copy of its long-range capital improvement program. District may from time to time make written requests to Agency, requesting Agency to construct one or more elements of this new aqueduct at dates earlier than the dates planned

by Agency. If Agency, after considering the availability of funds and other relevant matters, agrees to accelerate the construction of any element or elements of this new aqueduct, then District shall commit in writing to reimburse Agency for the interest revenue foregone, or interest paid by Agency, as the result of such accelerated construction. Upon receipt of such written commitment acceptable to Agency in form and substance, Agency shall construct such element or elements. Agency shall bill District annually at least 30 days in advance of each bill's due date pursuant to such commitment and District shall pay each bill by its due date.

Construction of the new aqueduct elements shall be financed by Agency. Title to all elements of this new aqueduct shall vest with Agency, which shall operate and maintain this new aqueduct as part of the Transmission System. Construction of this new aqueduct shall not change any of the delivery limits, availability provisions or other terms of this Water Sale Agreement.

Section 13. Construction of New Ely-To-Kastania Aqueduct.

If Agency initiates construction of a new aqueduct roughly paralleling the portion of the existing Petaluma Aqueduct that extends from the junction of that aqueduct and the Cotati Intertie to the Ely Pumping Plant, then District may make a written request to Agency, requesting Agency to construct at District's expense an aqueduct roughly paralleling the portion of the existing Petaluma Aqueduct that extends from the Ely Pumping Plant to Kastania Reservoir, with sufficient capacity to meet the maximum delivery limits specified in Section 2 of this Water Sale Agreement and the maximum delivery limit specified in the Offpeak Agreement, taking into account surplus capacity in that portion of the existing Petaluma Aqueduct.

Construction of this new Ely-To-Kastania aqueduct shall be financed by cash deposits and payments from District. Title to this new aqueduct shall vest with Agency, which shall operate and maintain this new aqueduct as part of the Transmission system. Construction of this new aqueduct shall not change any of the delivery limits, availability provisions or other terms of this Water Sale Agreement.

Upon receipt of such a written request from District, Agency shall prepare and deliver to District design plans and a schedule for the construction of this new aqueduct, and a schedule for payment by District to Agency of appropriate deposits and payments for such plans and construction. If District commits in writing to pay such deposits and payments to Agency according to this payment schedule, then Agency shall construct this new aqueduct, and shall bill District for such deposits and payments according to this payment schedule. Agency shall bill District at least 30 days in advance of each bill's due date and District shall pay each bill by its due date.

Section 14. Place of Use.

Water received by District pursuant to this Water Sale Agreement and the Offpeak Agreement shall only be used within the sphere of influence (as such term is defined in Section 56076 of the Government Code) of the District on [insert effective date].

Section 15. Water Conservation.

District and Agency will comply with all applicable state laws related to water conservation planning and implementation, including the Urban Water Management Planning Act, Water Code Sections 10610-10655 (as such act now exists or in the future may exist). Whenever District files any urban water management plan, or any amendment or change to such a plan, with the Department of Water Resources or any other state agency, District shall, upon request from Agency, at the same time submit a copy of the plan amendment or change to Agency. Whenever Agency files any urban water management plan, or any amendment or change to such a plan, with the Department of Water Resources or any other state agency, Agency shall, upon request from District, at the same time submit a copy of the plan, amendment or change to District.

Section 16. California Environmental Quality Act.

Pursuant to Section 15051(d) of the State CEQA Guidelines, District is designated as the lead agency under the California Environmental Quality Act for the execution of this Water Sale Agreement, and for any projects south of Kastania Reservoir that District may construct to implement this Water Sale Agreement. Agency is designated as the lead agency for any projects north of Kastania Reservoir that Agency may construct to implement this Water Sale Agreement.

Section 17. Future Agency Application to Increase Limit on Diversions and Rediversions in Permit 16596.

District acknowledges that the 75,000 acre foot per year limit on diversions and rediversions in term 5 of Permit 16596 does not allow

Agency to utilize the entire yield of the Warm Springs Dam Project, and that Agency intends to file in the future an application with the State Water Resources Control Board to increase this limit. District recognizes and agrees that it will be in the public interest for the State Board to grant any such application.

Section 18. Effective Date, Term and Termination.

This Water Sale Agreement shall be effective July 1, 2015 and shall remain in effect until June 30, 2025. Upon the request of District, Agency shall enter into renewal agreements for periods not to exceed the then-existing term of the Restructured Agreement for Water Supply or any renewals, amendments or replacement agreements to the Restructured Agreement for Water Supply upon the same terms and conditions contained in this Water Sale Agreement, except that the Agency may make reasonable adjustments to the charges under Section 10 of this Water Sale Agreement, and any such reasonable adjustments then shall be included in any renewal agreement. If the Restructured Agreement for Water Supply has been terminated or has expired without being renewed, amended or replaced by another agreement pertaining to water supply, then upon the request of District, the Agency shall enter into renewal agreements for periods not to exceed forty (40) years upon the same terms and conditions contained in this Water Sale Agreement, except that the Agency may make reasonable adjustments to the charges under Section 10 of this Water Sale Agreement and any such reasonable adjustment then shall be included in any renewal agreement.

Section 19. Merger.

This writing is intended both as the final expression of the agreement between the parties hereto with respect to the included terms and conditions and as a complete and exclusive statement of the terms of the Water Sale Agreement. Pursuant to Code of Civil Procedure Section 1856, no modification of the Water Sale Agreement shall be effective unless and until such modification is evidenced by a writing signed by all parties.

Section 20. Equitable Remedies.

Because water is a scarce and precious resource, District will not have an adequate remedy at law, and thus may request a court of competent jurisdiction to order equitable remedies, to compel Agency to deliver the water that District is entitled to receive pursuant to this Water Sale Agreement. Such equitable remedies shall be District's sole and exclusive remedies in actions brought by District relating to the amounts of water that Agency must deliver to District pursuant to this Water Sale Agreement.

Section 21. Waiver and Indemnification.

District waives, releases and forever discharges Agency, its officers, agents and employees from any and all liabilities, claims, demands, losses and costs relating to any of the following: (1) any property damage or personal injury arising from any non-delivery of water requested by District pursuant to this Water Sale Agreement, or for any property damage or personal injury arising from the quality of water delivered pursuant to this Water Sale Agreement, if such property damage or personal injury is caused by lack of available capacity in the Transmission System, drought, earthquake or other Act of God, strike or other labor dispute, partial or total

dam, gate or tunnel loss, dam, gate or tunnel repairs, water pollution, or any factor beyond the control of Agency (whether or not such factor is listed in this sentence); and (2) any property damage or personal injury arising from any decision of Agency or the Water Contractors regarding:

(a) determinations of the availability of water for sale by Agency to District pursuant to this Water Sale Agreement; (b) allocation of Transmission System capacity; (c) proposed expansions of the Transmission System; or (d) repair (or non-repair) of the Potter Valley Project, Coyote Valley Dam or Warm Springs Dam. District's waiver, release and discharge described in this paragraph shall apply to any of the property damages or personal injuries described in this paragraph, whether or not such property damages or personal injuries were caused by Agency's negligence, unless such property damages or personal injuries resulted from Agency's sole negligence, willful misconduct or violation of law.

District shall indemnify, hold harmless, protect and defend Agency, its officers, agents and employees from and against any and all liabilities, claims, demands, damages, losses, disabilities or expenses (including attorney fees and litigation costs) of every nature arising out of, or in connection with: (1) the lack of quantity of water that has been delivered by Agency to District pursuant to this Water Sale Agreement; or (2) the control, conveyance and disposition of water that has been delivered by Agency to District pursuant to this Water Sale Agreement. For the purposes of this section, the point of delivery shall be as specified in Section 3 of this Water Sale Agreement. District shall provide such indemnification, holding harmless, protection and defense whether or not such liabilities, claims, demands, damages, losses, disabilities or expenses are based on Agency's negligence, unless such liabilities, claims,

demands, damages, losses, disabilities or expenses are based on Agency's sole negligence, willful misconduct or violation of law.

This section shall not apply to any construction activities, or construction contracts, relating to the construction described in Section 13 of this Water Sale Agreement. The provisions in this section regarding attorney fees shall not apply to any other section of this Water Sale Agreement.

Section 22. Water Quality.

Water delivered by Agency to District pursuant to this Water Sale Agreement shall be of the same general quality as water delivered by Agency from the Transmission System to the Water Contractors. Except as expressly stated in the preceding sentence, Agency does not make any express or implied warranty regarding the quality of the water delivered pursuant to this Water Sale Agreement.

Section 23. No Effect on Offpeak Agreement.

Except as stated in Section 14 of this Water Sale Agreement, nothing in this Water Sale Agreement shall be construed as affecting or amending the Offpeak Agreement.

Section 24. Method and Place of Giving Notice and Making Payments.

All notices shall be in writing and notices and payments may be given by personal delivery or by mail. Notices and payments sent by mail shall be addressed as follows;

Agency: General Manager
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403

District: General Manager
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925

When so addressed, a notice shall be deemed given upon deposit in the United States Mail, postage prepaid. In all other instances, notices and payments shall be deemed given at the time of actual delivery. Changes may be made in the names and addresses of the person to who notices and payments are to be given by giving notice pursuant to this section.

Section 25. Demand for Assurance.

When reasonable grounds for insecurity arise with respect to the performance of either party, the other party may, in writing, demand adequate assurance of due performance and, until it receives such assurance, may, if commercially reasonable, suspend any performance for which the agreed return performance has not been received. "Commercially reasonable" includes not only the conduct of either party with respect to performance under this Water Sale Agreement, but also conduct with respect to other agreements with the other party to this Water Sale Agreement or others. After receipt of a justified demand, the failure to provide within a reasonable time, but not exceeding 30 days, such assurance of due performance as is adequate under the circumstances of the particular case is a repudiation of this Water Sale Agreement. Acceptance of any improper delivery, service, or payment does not

prejudice the aggrieved party's right to demand adequate assurance of future performance.

Section 26. Third Party Beneficiaries.

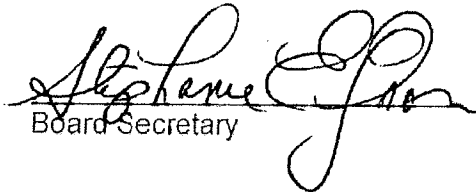
No third party beneficiaries are intended or established by this Water Sale Agreement.

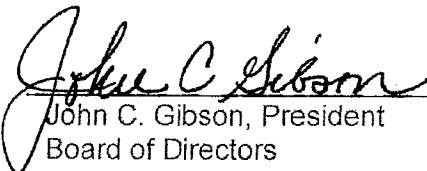
Section 27. Representation by Counsel.

Agency and District each was represented by independent counsel in the negotiation and execution of this Water Sale Agreement. For the purposes of interpretation of this Water Sale Agreement, neither party shall be deemed to have been the drafter of this Water Sale Agreement.

ATTEST:

MARIN MUNICIPAL WATER DISTRICT

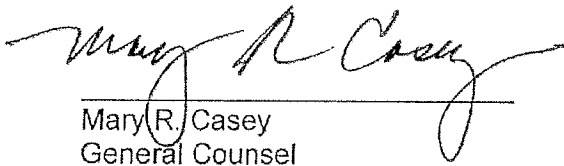

Board Secretary

By: 
John C. Gibson, President
Board of Directors

Reviewed as to Substance
Marin Municipal Water District

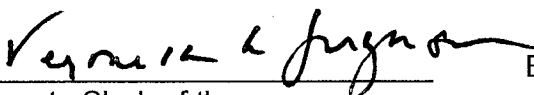

Krishna Kumar
General Manager

Reviewed As To Form:


Mary R. Casey
General Counsel

ATTEST:

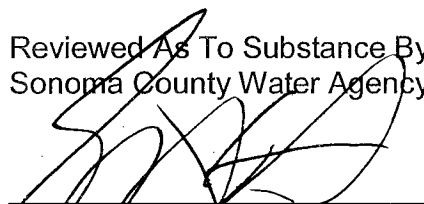
SONOMA COUNTY WATER AGENCY


Deputy Clerk of the
Board of Directors

By: 
Chair, Board of Directors

DATE: 6/16/15

Reviewed As To Substance By
Sonoma County Water Agency:


Grant Davis, General Manager

Reviewed As To Form:


Steven S. Shupe
Deputy County Counsel

Appendix F: District Board Policy No. 2



MARIN MUNICIPAL WATER DISTRICT

BOARD POLICY

No.: 2

DATE: Original 4/26/78
Revised 10/31/90
Revised 2/23/94
Revised 5/21/97
Revised 10/01/13

SUBJECT: RECYCLED WATER

The Marin Municipal Water District's recycled water program annually delivers 600 acre-feet of water to over 320 sites. The Recycled Water Program began in 1981 with construction of the District's 1 million gallon per day (mgd) Las Gallinas Valley Recycled Water Facility (Facility). The District increased the Facility's capacity in 1989 to 2 mgd.

The Facility is owned and operated by the District and produces tertiary recycled water that meets the most stringent requirements of California Title 22. The District's recycled water customers primarily use recycled water for irrigation, however, the District also has customers that use recycled water for cooling towers, a commercial laundry, washing cars and toilet flushing.

The Marin Municipal Water District wishes to encourage the maximum use of recycled for all beneficial uses. The development and operation of recycled water facilities is consistent with the goals of the Marin Countywide Plan, and is determined to be compatible with the development of other water sources and the operation of a potable water system.

The following are offered to show the extent to which the District supports the continued development of recycled water:

1. The Marin Municipal Water District recognizes recycled water as an additional water source and an integral part of its water supply.
2. The District will from time to time determine the points, quantities, and rates of flow at which it will deliver recycled water for use by its customers. These determinations shall be made solely by the District on the basis of availability of dependable supply of recycled water, the feasibility of the distribution thereof to the point of delivery, and the water requirements of the customer.
3. At the District's discretion, certain areas in and around a water recycling facility may be designated as "recycled water use areas" which may require, as a condition of water service, the use of recycled water for irrigation, indoor water use, and other types of non-potable use.
4. The District shall continue to review, develop and pursue opportunities for expanding its recycled water program, and to support efforts to safely broaden the use of recycled water.

Appendix G: Water Shortage Contingency Plan



**Water Shortage Contingency Plan
Marin Municipal Water District**

January 2024

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ATTACHMENTS

Attachment 1. Sonoma County Water Agency Annual Water Supply and Demand Assessment Procedures

Attachment 2. Water Shortage Contingency Plan Resolution

Attachment 3. Water Shortage Response Actions: Prohibitions on End Users and District Actions

Attachment 4. Water Waste Prohibitions in Effect at All Times

1 INTRODUCTION

Marin Municipal Water District's (MMWD's or District's) Water Shortage Contingency Plan (WSCP) has been developed to serve as a flexible framework of planned response measures to mitigate future water supply shortages. This WSCP builds upon and supersedes the WSCP that was presented in the 2020 Urban Water Management Plan (UWMP). The WSCP includes the stages of response to a water shortage caused by drought or by supply interruptions caused by infrastructure failure, regulatory mandate, or catastrophic human-caused or natural events. The primary objective of the WSCP is to ensure that the District has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. The WSCP also includes procedures to conduct an annual assessment of water supply and demand in order to determine whether water shortage conditions are likely to exist in the forthcoming year, and to proactively begin the process of implementing WSCP stages of action, as appropriate.

This WSCP has been prepared in accordance with California Water Code (CWC) § 10640 and CWC § 10632 of the UWMP Act. The information presented in the respective WSCP sections and the associated text and tables are collectively intended to fulfill the requirements of that sub-section of the UWMP Act.

2 WATER SUPPLY RELIABILITY ANALYSIS

Assessment of water supply reliability is dependent upon a number of factors, such as: the sources of water, regulatory and legal constraints, hydrological and environmental conditions, projected climate change impacts, and expected growth, among others. Based on historical data, water supply modeling, projections of future water uses, imported water, and recycled water availability, an assessment was conducted for determining the reliability of future water supply. Based on the service reliability analysis completed as part of the 2020 UWMP, the District is expected to have adequate water supplies during normal years, single dry years, and multiple dry years to meet projected demands through 2045.

A Drought Risk Assessment was also conducted during the 2020 UWMP water supply reliability assessment, which evaluates the effects on available water supply sources of an assumed five-year drought commencing the year after the assessment is completed (i.e., from 2021 through 2025). Based on the Drought Risk Assessment, the District is expected to have sufficient water supply from 2021 to 2025 in this multi-year drought scenario, although, as described in this WSCP, there are a number of actions that the District will implement to reduce demands and further ensure supply reliability at various levels of water shortage.

However, contrary to the foregoing assessments of water supply, the District recently experienced two very dry years (2020 and 2021) that resulted in historically low reservoir storage levels to the point the District was projected to run out of water in less than a year. Reservoir levels were replenished by a 100 year rain event in October 2021 and an atmospheric river in December 2021. Since that time the District has revised the analysis to include more severe drought conditions and concluded that additional water supply is needed to assure adequate water supply during extreme drought conditions.

3 PRIOR DROUGHT ACTIONS

The District has historically developed different strategies for reducing water demand during water shortages. The District's actions in response to the drought that occurred in California between 2014 and 2017 and the recent severe drought of 2021 are discussed below.

On 1 April 2015, Governor Brown issued the fourth in a series of Executive Orders regarding actions necessary to address California's severe drought conditions. Executive Order B-29-15 directed the State Water Resources Control Board (SWRCB) to impose the first ever mandatory restrictions on urban water suppliers to achieve a statewide 25% reduction in potable urban water usage through February 2016. The Executive Order also required commercial, industrial, and institutional (CII) users to implement water efficiency measures, prohibited irrigation with potable water of ornamental turf in public street medians, and prohibited irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems, along with numerous other directives.

On 5 May 2015, the SWRCB adopted Resolution 2015-0032 that mandated minimum actions by water suppliers and their customers to conserve water supplies into 2016 and assigned a mandatory water conservation savings goal to each water supplier based on a measurement of their residential water use in gallons per capita per day (R-GPCD). The Office of Administrative Law approved the regulations and modified the CWC on 18 May 2015. On 2 February 2016, the SWRCB voted to extend the emergency regulations until October 2016 with some modifications. On 9 May 2016, the Governor issued Executive Order B-37-16, which directed the SWRCB to extend the emergency regulations through the end of January 2017 as well as make certain water use restrictions permanent. On 18 May 2016, the SWRCB adopted Resolution 2016-0029 that adjusted the water conservation savings goal and replaced the February 2016 emergency regulation. The SWRCB may take separate action to make some of the requirements of the regulations permanent in response to the Executive Order.

The mandatory conservation standards included in CWC § 865(c) ranged from 8% for suppliers with an R-GPCD below 65 R-GPCD, up to 36% for suppliers with an R-GPCD of greater than 215 GPCD. As with previous emergency drought regulations adopted by the SWRCB in 2014, the new water conservation regulation was primarily intended to reduce outdoor urban water use. Based on their R-GPCD, the District was required to reduce water use by 20% relative to its 2013 water use.

Through enactment of its WSCP, the District surpassed these reduction targets. During the June 2015 through May 2016 compliance period, the District surpassed its water use reduction target with a cumulative savings of 21% relative to its 2013 use. In June 2016, the District adopted its 2015 UWMP and associated WSCP update. In April 2017, Governor Brown ended the drought State of Emergency.

More recently in April of 2021, the District declared a water shortage emergency pursuant to California Water Code sections 350 and 71640, and the County of Marin declared a drought emergency in May 2021. Also in May 2021 Governor Newsom declared a drought emergency in certain areas of the state, and later that year extended the drought emergency to the entire state of California. The state is currently seeking 15% reductions in water use across the state.

4 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Each year the District will conduct an Annual Water Supply and Demand Assessment (AWSDA) to identify whether there is likely to be a water shortage condition in the following year. Because a substantial portion of the District's potable water supply is from SCWA, the evaluation of SCWA supplies for a particular year will be based on information provided by SCWA.

For purposes of this assessment, a water shortage condition is defined as an anticipated shortfall of 20%, corresponding to Water Shortage Level 2. Each element of the AWSDA is described below, along with the key data inputs and methodologies for determining these elements, and expected timing of the decision process.

1. Evaluation Criteria

The evaluation criteria that will be used to identify whether the District is likely to experience a water shortage in the coming year include:

- **SCWA Available Supply** – SCWA will develop and present the draft annual assessment to the Technical Advisory Committee (TAC) at the April meeting. The final annual assessment will be presented in the June TAC meeting. The District is a member of the TAC and the Water Advisory Committee (WAC) that represents the major cities and water districts that receive water delivered by the Sonoma Water aqueduct system. The District will conduct the Annual Assessment regarding the SCWA available supply as part of a coordinated effort led by SCWA.

Further details about the evaluation criteria and procedure used by SCWA in conducting an Annual Assessment could be found in **Attachment 4** of this WSCP. As discussed in **Attachment 4**, evaluation criteria used by SCWA include:

- Unconstrained customer demand for each of SCWA's wholesale customers, considering weather, growth, and other influencing factors;
 - Russian River operations, including current reservoir releases from Lake Sonoma and Mendocino and anticipated releases to meet in-stream flow requirements and water demand;
 - Hydrology and watershed conditions, including Lake Sonoma and Lake Mendocino cumulative inflows and storage levels, soil moisture, and snowpack; and
 - Potter Valley Project inflows, including Lake Pillsbury storage levels and observed and projected project transfers.
- **Local Surface Water Available Supply** - The District keeps real time data on all local reservoir water levels with periodic evaluations of reservoir capacity through bathymetric studies. The last bathymetric study was completed in April 2016.
 - **Rainfall Data** - Rainfall data is maintained by the District through calibrated rain gauges located on District's watershed lands. There are two principal rain gauge locations: one

located at Lake Lagunitas for which the District has 142 years of rainfall data, and the other located at the Kent Lake stream release that is used for determination of dry or normal year conditions for stream releases to Lagunitas Creek. The gauges are manually read by District staff. Unofficially, the District currently has the ability to record these rain gauge information via an installed SCADA system. After a couple years of comparing the manual reads to the SCADA data, if the two results are close enough then the District will solely collect the rain data via SCADA.

- **Reservoir Storage** - The District's primary water supply is surface water, fed from local rainfall, into the seven local reservoirs: Lagunitas, Phoenix, Bon Tempe, Alpine, Kent, Nicasio and Soulajule. In 2022, the total reservoir storage operated by the District is 25.9 billion gallons (79,566 AF). From these reservoirs, the water is conveyed to either the Bon Tempe Treatment Plant (BTTP) near Ross or the San Geronimo Treatment Plant (SGTP) in Woodacre.
- **Local Regulatory Conditions** - The District and North Marin Water District entered into the 2022 Amended and Restated Interconnection Agreement in January 2022. The purpose of the agreement is to provide the basis for and mechanism whereby Marin Municipal and North Marin can each, as a first priority, continue to meet the needs of their respective customers, and simultaneously, to the extent feasible, utilize their respective water systems and surplus system capacity in a coordinated manner for the benefit of the customers of both Districts. Section 3 C of the agreement governs the release by Marin Municipal for the benefit of North Marin as follows: *"On North Marin's request, when flow in Lagunitas Creek is determined by North Marin to be low or when the dry year condition described in State Water Resources Control Board Order 95-17 occurs, Marin Municipal shall release to Nicasio Creek or Lagunitas Creek for North Marin's benefit up to 250 acre-feet per year. Said water shall be used by North Marin within its Inverness Point Reyes Annexation Territory."* Since the agreement was signed North Marin has not requested release volumes of any significance.
- **State Regulatory Conditions** - Evaluation of any state-mandated drought or water use restrictions known during preparation of the AWSDA. Water Rights Order 95-17 defines dry year conditions which impact the regulated volume of stream releases from Kent Lake.

These criteria will be assessed by District staff with detailed knowledge of District operations. The data used to support these assessments may include, but are not limited to, SCWA's Annual Water Supply and Demand Assessment, reservoir storage levels and system demand.

2. Water Supply

On the basis of the evaluation criteria above and available supporting information, the District will quantify the projected available supply over the forthcoming year. This quantification will likely be a range, and subject to revision as new data are available and as conditions evolve.

3. Unconstrained Customer Demand

Unconstrained customer demands (i.e., the expected water use in the absence of shortage-caused reductions in water use) will be evaluated and estimated for the forthcoming year based on:

- A comparison of monthly customer demands relative to prior years (e.g., last 3 years),
- Evaluation of current and anticipated weather conditions,
- New demands anticipated during the coming year (e.g., new accounts coming online), and
- Any other potentially pertinent factors identified by the District (e.g., pandemic-related stay-at-home orders).

4. Planned Water Use for Current Year Considering Dry Subsequent Year

The District will compare the estimated unconstrained demands to the anticipated supplies for the current year, assuming that the following year will be dry (i.e., a 20% supply shortfall), using the Evaluation Criteria identified above.

5. Infrastructure Considerations

The District will evaluate how infrastructure capabilities and constraints may affect its ability to deliver supplies to meet expected customer water demands in the coming year. The constraints and capabilities are expected to include, among other things:

- Anticipated capital projects and upgrades, and
Anticipated maintenance and repairs.

6. Team Members

The District's Water Resources Director will lead a team to conduct the assessment, the Team will include:

- District's Water Resources Director,
- District's Operations Director,
- District's Conservation Manager,
- District's Engineering Planning Department,
- District's Public Outreach Department,

7. Timeline

Once per month, at a regularly scheduled Board meeting, the Water Resources Director provides the District Board of Directors a briefing on water supply. The Monthly Water Supply Update typically includes at a minimum rainfall, reservoir storage levels and a storage level forecast to the end of the water year. The District's water storage levels, demand and hydrologic conditions are continuously monitored throughout the year. The District will utilize the procedures outlined in Table 4-1 to complete the AWSDA. Consistent with California Water Code (CWC) § 10632.1, the District will perform and submit an AWSDA to DWR by July 1st of each year beginning in 2022.

Table 4-1 Annual Supply-Demand Assessment Procedures Decision-Making Timeline

Decision-Making Process	Responsible Parties	Start Date	End Date
Track reservoir storage levels to determine if a shortage is projected	Water Resources Department	1 Jan	1 April
Determine water supplies by source for the current year	Water Resources Department	1 April	30 April
Obtain Draft Assessment from SCWA	SCWA	April	April
Provide Comments on SCWA Draft Assessment	MMWD	April	April
Calculate the water supply reliability using spreadsheet, computer model, or other method	Water Resources Department	1 April	--
Determine shortages and response actions	Water Resources Department	30 April	--
Prepare and present preliminary report to District Board	Water Resources Department	30 April	--
Obtain Final Annual Assessment from SCWA	SCWA	May/June	May/June
Update water supply reliability and on SCWA Final Assessment	Water Resources Department	May/June	30 June
Send final annual water shortage assessment report to the State	Water Resources Department	1 June	No later than July 1 st of each year beginning in 2022

5 WATER SHORTAGE LEVELS

This WSCP includes six triggers, as required by the State that provide the District more flexibility in addressing dry periods earlier in the water year. The triggers allow the District to successfully manage supplies through severe drought and are designed to reduce the likelihood of a water shortage that will negatively affect customers. **Table 5-1** shows the six stages of water shortage currently used by the District. Each stage of the WSCP will be enacted and retracted by resolution of the District Board of

Directors based on identified triggers and staff recommendation, or upon the determination that SCWA or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use due to a water supply shortage or emergency. Each stage of action is described in further detail in Sections 6.1 through 7 below.

Table 5-1 Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions
0	0%	Includes water waste prohibitions effective at all times.
1	Up to 10%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 70,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 6-1) as well as agency actions (see Table 6-2).
2	Up to 20%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 65,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 6-1) as well as agency actions (see Table 6-2).
3	Up to 30%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 55,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 6-1) as well as agency actions (see Table 6-2).
4	Up to 40%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 45,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 6-1) as well as agency actions (see Table 6-2).
5	Up to 50%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 35,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 6-1) as well as agency actions (see Table 6-2).
6	>50%	- Total reservoir storage is at or is projected to be, or is, in the vicinity of 25,000 acre-feet on April 1st. - Includes implementation of mandatory restrictions on end uses (see Table 6-1) as well as agency actions (see Table 6-2).

6 SHORTAGE RESPONSE ACTIONS

This section describes the response actions the District will take to deal with the shortages associated with each of the six stages enumerated in Section 0. The Prohibitions on End Users, District Actions and Supply Augmentation are collated in Attachment 3 for ease of implementation.

6.1 Prohibitions on End Users

The District has a number of restrictions and prohibitions that it implements during periods of rationing (i.e., water shortage stages). Additionally, the District implements on-going prohibitions to reduce baseline water waste (Attachment 4). **Table 6-1** below identifies these prohibitions, the water shortage stage(s) at which they are implemented, and whether a penalty, charge, or other enforcement mechanism is applied for violations of these prohibitions. The water shortage stages of action are discussed further in Section 0 and the penalties, charges, and enforcement are discussed in Section 6.4. These prohibitions and enforcement actions have been adopted and are codified in the District's Code.

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
Landscape Irrigation				
0, 1, 2, 3, 4, 5, 6	Other landscape restriction or prohibition	5%	The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited.	Y
0, 1, 2, 3, 4, 5, 6	Restrict or prohibit runoff from landscape irrigation	5%	Irrigation shall not be conducted in a manner or to an extent that allows water to run off or overspray the areas being watered. Every customer is required to have his or her water distribution lines and facilities under control at all times to avoid water waste.	Y

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
0, 1, 2, 3, 4, 5, 6	Limit landscape irrigation to specific times	5%	Any landscape irrigation between the hours of 9:00 a.m. and 7:00 p.m. is prohibited. Necessary testing and repair of irrigation systems for the purpose of eliminating water waste is permitted during the hours of 9:00 a.m. and 7:00 p.m. Customers shall maintain appropriate documentation of any necessary testing and repairs for these purposes. For example, this documentation may include, but not be limited to, any applicable reports, invoices, photos, videos, and/or receipts for materials and labor related to the testing and repairs.	Y
0, 1, 2, 3, 4, 5, 6	Limit landscape irrigation to specific days	5%	Increase restrictions on irrigation. For example, operating outdoor irrigation systems using potable water for the purpose of irrigating with overhead spray more than two days, as assigned by the District, within any calendar week may be prohibited. For the purposes of this section, "calendar week" shall mean a period running from Monday-Sunday.	Y
0, 1, 2, 3, 4, 5, 6	Other landscape restriction or prohibition	5%	Irrigating ornamental turf on public street medians is prohibited.	Y

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
3	Prohibit certain types of landscape irrigation	30%	Golf course irrigation, with potable or raw water, shall be irrigated up to 70% of the sites Maximum Applied Water Allowance per District Water Efficient Landscape Code Appendix A.	Y
4	Limit landscape irrigation to specific days	40%	Limit irrigation to 1 day per week, assigned by the District.	Y
4	Prohibit certain types of landscape irrigation	40%	Golf course irrigation, with potable or raw water, shall be irrigated up to 60% of the sites Maximum Applied Water Allowance per District Water Efficient Landscape Code Appendix A.	Y
5	Other landscape restriction or prohibition	50%	Irrigation restricted to maintain tree health for all potable and raw water customers, including golf courses.	Y
5	Other	50%	Establish, or implement, Water Use Limits and associated penalties.	Y
Restrictions on Consumer Products				
0, 1, 2, 3, 4, 5, 6	Other	5%	The installation of reverse osmosis water purifying systems not equipped with an automatic shutoff unit is prohibited.	Y
0, 1, 2, 3, 4, 5, 6	Pools and Spas - Require covers for pools and spas	30%	All recreational pools and spas shall have covers.	Y
Restrictions on New Connections and Landscaping				

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
0, 1, 2, 3, 4, 5, 6	Other	5%	Single pass cooling systems for air conditioning or other cooling system applications are prohibited, unless required for health or safety reasons.	Y
0, 1, 2, 3, 4, 5, 6	Other	5%	New non-recirculating systems for conveyer car wash applications is prohibited.	Y
4, 5, 6	Other	40%	No installation of new landscapes including no expansion of existing landscapes.	Y
5	Moratorium or Net Zero Demand Increase on New Connections	50%	The Board shall consider a moratorium on new water service connections, or no net water use requirements for new connections.	Y
6	Other	55%	New water service applications will not be granted.	Y
6	Other	55%	The use of potable water for any purpose other than human health and sanitation is prohibited.	Y
Restrictions on Commercial Operations				
0, 1, 2, 3, 4, 5, 6	Lodging establishment must offer opt out of linen service	5%	Lodging establishments must provide patrons the option of not having towels and linen laundered daily.	Y
0, 1, 2, 3, 4, 5, 6	Restaurants may only serve water upon request	5%	Drinking water served upon request only.	Y
Other				

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
0, 1, 2, 3, 4, 5, 6	Prohibit use of potable water for washing hard surfaces	5%	The washing of sidewalks, walkways, driveways, parking lots and all other hard surfaced areas by direct hosing, except as may be permitted by current regulations pertaining to urban water runoff pollution prevention as defined by the Marin County Stormwater Pollution Prevention Program and other controlling agencies.	Y
0, 1, 2, 3, 4, 5, 6	Customers must repair leaks, breaks, and malfunctions in a timely manner	5%	The escape of water through breaks or leaks within the consumer's plumbing or private distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 48 hours after the consumer discovers such a leak or break, or receives notice from the district of such leak or break, whichever occurs first, is a reasonable time within which to correct such leak or break.	Y
0, 1, 2, 3, 4, 5, 6	Other	5%	Gutter flooding is prohibited.	Y
3, 4, 5, 6	Other	30%	Use of potable water for refilling or make-up water of any decorative water features, is prohibited.	Y
2, 3, 4, 5, 6	Other	20%	Implement drought rates consistent with District-wide targeted water savings.	N

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
5, 6	Other landscape restriction or prohibition	50%	Refilling a completely drained swimming pool and initial filling of any swimming pool for which application for a building permit was made after District specified date.	Y
0, 1, 2, 3, 4, 5, 6	Require automatic shutoff hoses	5%	Using a garden hose without a shut-off nozzle is prohibited.	N
0, 1, 2, 3, 4, 5, 6	Other	5%	Any excess water runoff flowing onto the public right of-way at a rate of one gallon per minute or greater not caused by storm water or naturally occurring groundwater is prohibited.	Y
0, 1, 2, 3, 4, 5, 6	Other	5%	Use of private fire lines or private fire taps for any purposes other than fire suppression and necessary testing is prohibited.	Y
3, 4, 5, 6	Other	30%	Washing vehicles with potable water except at commercial carwash facilities that use recycled water, is prohibited.	Y
3, 4, 5, 6	Other	30%	Power-washing any structure using potable water, unless required for health and safety as required by Marin County Health Department.	Y
3, 4, 5, 6	Limit use of potable water for construction and dust control	30%	Use of potable water for dust control, soil compaction, street cleaning, or any other use, as determined by the District, which can be met with disinfected tertiary recycled water.	Y

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement?
0, 1, 2	Other	5%	Sewer cleaning/flushing should be done using recycled water when available without hauling by truck and whenever reasonably possible.	Y
3, 4, 5, 6	Other	30%	Limit sewer cleaning/flushing to only recycled water.	Y
4, 5, 6	Other	40%	Request that local fire departments limit training exercises that use potable water and cease hydrant testing.	Y
6	Other	50%	Request that local fire departments cease training exercises that use potable water and cease hydrant testing.	Y
Notes: (a) The reductions shown are the combined reductions for all the actions associated with the particular shortage level.				

6.2 Variances to Dry Period Regulations

The District does allow for certain variances to the water shortage stage prohibitions discussed in Section 6.1. All variance requests must be submitted in writing to the District and include the account name, service number, and service address. Per the District's Water Conservation Ordinance (Title 13) variances may be granted to District customers as follows:

The District may grant variances for use of water otherwise prohibited under mandatory water use prohibitions if it is found and determined that:

- (1) Failure to do so would cause an unnecessary and undue hardship on applicant or the public, including but not limited to, adverse economic impacts;
- (2) Failure to do so would cause an emergency condition affecting the health, sanitation, fire protection or safety of the applicant or the public; or
- (3) Customer is able and agrees to provide an alternative means of providing comparable water conservation.

Any request for a variance shall be submitted to the District in a writing providing sufficient detail regarding the request and the reasons therefore. After consideration of the variance request, a written decision shall be provided to the customer rejecting, partially approving or approving the variance request. If the customer disagrees with the initial determination, the customer may avail themselves of the appeal process set below.

(1) Customers may appeal a decision regarding a variance or an enforcement action by following the procedures set forth below:

(A) Within thirty (30) calendar days of the variance denial or partial denial or a notice of violation, customer shall mail a written appeal containing all applicable evidence supporting their position to the Water Efficiency Department at 220 Nellen Avenue, Corte Madera, CA 94925. For purposes of this section an appeal shall be deemed received by the District on the day of post-mark by the U.S. Postal Service.

(B) The District shall respond to the appeal in writing either denying, granting or partially granting the appeal. If customer disputes the initial written determination of his/her appeal, then customer may request a further appeal by submitting a further writing to the District within fifteen (15) calendar days from the date of the initial written response to the appeal.

(C) Upon receipt of a timely further appeal, a hearing on the appeal will be scheduled and the District will mail notice of this date to the customer at least ten (10) calendar days before the hearing.

(D) The General Manager or designee shall conduct a hearing on the appeal considering all applicable facts and issue a written decision containing his or her decision on the appeal. The General Manager's or designee's decision shall be final.

(E) Any action not timely appealed shall be deemed final.

(F) Pending receipt of a written appeal or pending hearing pursuant to an appeal, the District may take appropriate steps to prevent unauthorized use of water as appropriate to prevent waste.

(G) This notice and hearing procedure shall not apply to those water waste situations charged as misdemeanors.

6.3 District Actions

In addition to implementing and enforcing the prohibitions on end users discussed in 6.1, the District has identified a suite of actions and operational changes it will enact at the various stages of water shortage. These actions are meant to reduce water demands on the distribution system itself, facilitate implementation of the identified prohibitions, provide educational resources to customers, and to continue to offer customers opportunities to reduce their water use. The District actions identified for each stage of action are listed below.

Dry Condition Stage: Shortage Level 1: 10% Voluntary

Operations

- Increase Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions

Advisory Stage: Shortage Level 2: 20% Voluntary

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Minimize system flushing
- Initiate water waste patrols

Drought Rates

- Implement drought rates consistent with District-wide targeted water savings.

Alert Stage: Shortage Level 3: 30% Mandatory

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Water waste patrols
- Increase system leak repair rate
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

Severe Stage: Shortage Level 4: 40% Mandatory

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix
- Increase system leak repair rate
- Increase Water waste patrols

- Consider Temporary Urgency Change Petition
- Consider Declaration of Water Shortage Emergency
- Consider limiting or excluding new service connections.

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

Critical Stage: Shortage Level 5: 50% Mandatory

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix
- Increase system leak repair rate
- Increase water waste patrols
- Implement Temporary Urgency Change Petition
- Implement Water Use Limits and Penalties

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

Emergency Stage: Shortage Level 6: > 50% Mandatory

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix
- Increase system leak repair rate
- Increase Water waste patrols
- Implement Temporary Urgency Change Petition
- Decrease Water Use Limits and implement issuance of Penalties to align with Health and Safety Water Allotments

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

6.4 Penalties, Charges, and Other Enforcement of Prohibitions

Table 6-1 in Section 6.1 identified the restrictions on water use by customers to be implemented during various stages of water shortage, as well as which of these items are enforceable by penalty. Any customer violating the restrictions on water use identified in **Table 6-1** shall receive a penalty as described below per the District's Enforcement provisions:

(1) For violations of the provisions set forth in chapter, other than Section 13.02.020(1)(B), the following enforcement procedures shall apply:

(A) First Notice—Warning Letter. Any customer violating the regulations and restrictions on water use set forth in this chapter, other than Section 13.02.020(1)(B), shall receive a written warning informing them of the violation for the first such violation and warning that a second such violation will result in a penalty.

(B) Notice of Violation. If, after receiving a written warning of violation for the same category of violation within one year, the district shall issue a *notice* of violation imposing a \$25.00 fine on the customer's next water bill.

(2) Repeat Violations. For customers found by the district to incur a further violation within the same category for which customer has already received a fine within the past year, customer shall be charged a fine of \$250.00 for each successive violation.

(3) Additional Enforcement Procedures.

(A) Failure by the customer to correct the violation and pay the applicable fine, after following the procedures set forth above in this section, may cause the district to install a flow restrictor to be installed in the service. If a flow restrictor is placed, a charge of \$150.00 for cost of installation and an additional \$150.00 cost for removal shall be paid by the violator.

(B) Any willful violation occurring subsequent to the issuance of the third written *notice* of violation may constitute a misdemeanor and may be referred to the Marin County District Attorney's office for prosecution. An individual convicted shall be punished by imprisonment in the County Jail for not more than 30 days, or by a fine not exceeding \$1,000.00 or both.

(C) The district may also disconnect the water service pursuant to Section 11.28.020 of this code. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the Board of Directors.

6.5 Defining Water Features

As required by CWC §10632, the District distinguishes between “decorative water features” such as ponds, lakes, and fountains that are artificially supplied with water and “recreational water features” such as swimming pools and spas. Prohibitions on water use for decorative water features are listed separately from those for recreational water features (see **Table 6-1**).

6.6 Supply Augmentation

Table 6-2 below includes a list of potential water supply augmentation actions that may be implemented in the event of a water shortage. While shortage levels are indicated in the table below, prior to enacting these actions, the District will evaluate on a case-by-case basis:

- (1) the sufficiency of demand reduction actions (**Table 6-1**) to supply shortage conditions,
- (2) the feasibility of implementing the action in light of regulatory, operational, and other constraints, and
- (3) the costs of implementing the action in context with the severity of the water shortage condition.

Table 6-2 Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference (optional)
1	Increase supplemental water imports and closely monitor storage levels and weather conditions	Up to 5,000 AF	Range dependent on regional drought conditions and hydraulic capabilities
1	Enact dry year stream release flow reductions	Up to 100 AF	As defined under Water Right Order 95-17 and agreements with NMWD
2	Minimize system flushing	Unknown	Focus on water quality improvements
2	Water waste patrols	Unknown	
3	Restrict line flushing to include only regulatory compliance actions	Unknown	Flush for violations of water quality regulations or required disinfection for new construction and repairs.
3	Increase system leak repair to prioritize class 2 leaks	Unknown	
3	Access Stored Emergency Supply	Unknown	Rental of generator for SoulaJule Reservoir to transfer water to Nicasio Reservoir
3	Access Stored Emergency Supply	Unknown	Initiate adjustments to pipe configuration to transfer water from Phoenix Lake to Bon Tempe Lake
4	Consider a Temporary Urgency Change Petition	Up to 2,500 AF	Change to environmental releases – possible reduction of migration flow volumes.
4	Increase water waste patrols	Unknown	

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference (optional)
4	Increase system leak repair to prioritize class 1-3 leaks	Unknown	
4	Consider Declaration of Water Shortage Emergency	Unknown	
4	Initiate development of Emergency Supplemental Supplies	Unknown	
5	Consider a moratorium on new water service connections, or no net water use requirements for new connections	Unknown	
5	Implement Water Use Limits and Penalties	Unknown	Long term
6	Decrease Water Use Limits and implement issuance of Penalties to align with Health and Safety Water Allotments	Unknown	Conducting feasibility analysis
NOTES:			

6.7 Shortage Response Action Effectiveness

Table 6-1 summarizes the District’s water shortage response actions with their estimated water reductions for each stage. For each action identified, the District has estimated the extent to which that action will reduce the gap between supplies and demands. The District has estimated the effectiveness of the shortage response actions based on water use reductions that have occurred historically and on expected reductions associated with implementing the Water Use Limits and Associated Penalties, and Drought Rates in more severe shortages.

7 CATASTROPHIC SUPPLY INTERRUPTION

Catastrophic supply interruptions may be caused by a regional power outage, an earthquake, or other disaster. In accordance with the Emergency Services Act, the District has developed an Emergency Operation Plan (EOP). This EOP guides response to unpredicted catastrophic events that might impact water delivery including regional power outages, earthquakes, or other disasters. The EOP outlines standard operating procedures for all levels of emergency, from minor accidents to major disasters. The District’s EOP has been coordinated with the SCWA and neighboring water purveyors.

In addition to the EOP, the District has prepared Emergency Action Plans for each of their dams that have been filed with the Department of Safety of Dams and the Marin County Office of Emergency Services. These Emergency Action Plans include inundation maps as well as notification procedures and contacts with the California Office of Emergency Services to assist first responders in case of an emergency.

7.1 Seismic Risk Assessment

Impacts associated with earthquakes and liquefaction are discussed in the *2022 Marin Municipal Water District Hazard Mitigation Plan* (District LHMP)¹. The District LHMP assesses the District's vulnerabilities to various hazards, including seismic hazards, and presents mitigation strategies that are planned over the next five years.

The District LHMP includes a discussion of the probability of a seismic event affecting District assets, citing an ABAG projection of a 63% chance of an earthquake of magnitude 6.7 or greater on one of the faults affecting Marin County between now and 2032. The District LHMP notes that much of the District's assets are located within mapped liquefaction areas or areas of high risk soils. The District LHMP includes an assessment of the District's vulnerability in the event of a major seismic event, and estimates that an earthquake on the San Andreas Fault of magnitude 7.8 would result in a total building damage of approximately \$185 million.

Some measures to mitigate seismic risk identified in the District LHMP include:

- Harden infrastructure and provide redundancy for critical functions;
- Perform seismic retrofits for vulnerable critical assets;
- Keep reserves for reconstruction; and
- Develop and adopt a continuity of operations plan.

Further discussion of seismic risks specific to the SCWA water system is provided in the *Sonoma County Water Agency Local Hazard Mitigation Plan*, dated 16 October 2018 (SCWA LHMP; SCWA, 2018).² The SCWA LHMP specifically assesses SCWA's natural hazard risks and vulnerabilities facing the SCWA infrastructure and provides a plan of action to address these vulnerabilities. The SCWA LHMP identifies a series of mitigation measures to address seismic risk, including seismic retrofits of distribution system components to protect against damage due to liquefaction and lateral spread hazard and installation of automated throttling valves at aqueducts and interties to minimize uncontrolled releases out of SCWA facilities. For more detail regarding planned mitigation measures to address seismic risks, please refer to the SCWA LHMP.

The District also assessed the risks of an earthquake to the District's water supply system and infrastructure in the *Marin Municipal Water District Water Resources Plan 2040* (MMWD, 2017).³ Through use of the Marin WaterSim model, it was determined that, while several treatment plants could become un-operational for up to three months following an earthquake event, District water demands

¹District's LHMP can be found at the following website:

https://www.marinwater.org/sites/default/files/2022-04/2022-03-23_MMWD_Hazard_Mitigation_Plan_Final.pdf

² The SCWA LHMP could be found in the following website:

<https://evogov.s3.amazonaws.com/185/media/186587.pdf>

³ The Marin Municipal Water District Water Resources Plan 2040 could be found in the District website:

<https://www.marinwater.org/sites/default/files/2020-09/Water%20Resources%20Plan%202040.pdf>

could still be met by increasing production from unaffected treatment plants. More detail regarding the earthquake risk assessment and modelling can be found in District's Water Resources Plan 2040.

8 COMMUNICATION PROTOCOLS

Each stage of the WSCP will be enacted and retracted with a formal declaration by the District Board of Directors based on identified triggers and staff recommendation, or upon the determination that SCWA or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use due to a water supply shortage or emergency. Procedures for water shortage declaration and termination are detailed below in Section 10.

Even before formal declaration of a water shortage, a public information program will be activated to provide customers with as much advance notice as possible. Following declaration of a shortage, District customers would need to be provided notice of water shortage rules and regulations via a variety of media and communications methods. Some of these communication methods will include the following:

Dry Conditions Stage: Shortage Level 1: 10% Voluntary

- Initiate public outreach campaign to communicate about dry conditions
- Education focused on ongoing prohibitions and water waste reporting
- Provide list of simple actions that can be done to save water (e.g., use a broom instead of hosing down a sidewalk)
- Explain drought situation to the public and governmental bodies via "Drought Watch" to provide a snapshot of the water supply picture, restrictions, and water conservation tips
- Promote the Weekly Watering Schedule
- Explain other stages and forecast future actions

Advisory Stage: Shortage Level 2: 20% Voluntary

- Accelerate public information and increase outreach
- Develop internal speakers bureau to provide educational presentations to community groups
- Develop (or use existing) brief and simple educational videos that cover topics normally touched on during water efficiency phone consultations
- Provide outreach toolkit to cities in service area of drought conditions to ensure collaboration
- Encourage use of graywater and weather-based landscape watering
- Explain other stages and forecast future actions

Alert Stage: Shortage Level 3: 30% Mandatory

- Accelerate public information program, outreach campaign, and communication with news media to help amplify messaging

- Provide updated outreach toolkit to cities to ensure collaboration
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering
- Explain other stages and forecast future actions

Sever Stage: Shortage Level 4: 40% Mandatory

- Provide information to customers about trees preservation during drought conditions
- Accelerate public information program, outreach campaign, and communication with news media to help amplify messaging
- Provide updated outreach toolkit to cities to ensure collaboration
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering
- Explain other stages and forecast future actions

Critical Stage: Shortage Level 5: 50% Mandatory

- Accelerate public information program, outreach campaign, and additional communication with news media to help amplify messaging
- Provide updated outreach toolkit to cities to ensure collaboration
- Explain other stages and forecast future actions
- Communicate Water Use Limits and associated penalties
- Provide information to customers about trees preservation during drought conditions
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering

Emergency Stage: Shortage Level 6: > 50% Mandatory

- Accelerate public information program, outreach campaign, and additional communication with news media to help amplify messaging regarding Health and Safety Water Allotments
- Provide updated outreach toolkit to cities to ensure collaboration
- Provide information to customers about trees preservation during drought conditions
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering

Coordination between the District and other public agencies may begin prior to formal declaration of a water shortage and can be accomplished through regular meetings, e-mail group updates, and

presentations. In a regional water shortage scenario, the District would use public outreach resources and materials provided by SCWA, ACWA, Marin County, and other strategic partners, as well as its own resources as described above.

9 COMPLIANCE AND ENFORCEMENT

As discussed in Section 6.4, any customer violating the regulations and restrictions on water use set forth above in **Table 6-1** shall receive a written warning for the first such violation, and then a notice of violation and a \$25 fine for a second violation, and additional penalties for repeat violations as noted in Section 6.4. Additional enforcement procedures may include the following:

- Failure to correct the violation and pay the applicable fine may cause the District to install a flow restrictor on the service.
- Any willful violation occurring subsequent to the issuance of the third written notice of violation may constitute a misdemeanor and may be referred to the Marin County district attorney's office for prosecution.
- The District may also disconnect the water service pursuant its code. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the board of directors.

As discussed in Chapter 9 of the District's 2020 Urban Water Management Plan (UWMP), several District staff members jointly share the responsibility for implementation of the District's water conservation program. Staff time dedicated to water conservation and enforcement action will increase with the severity of a supply shortage. Additional duties may be assigned to current employees or hiring of temporary staff may be considered to meet staffing needs during extreme water shortages.

10 LEGAL AUTHORITIES

The District has the ability to declare and rescind a Water Shortage Emergency under the following authorities and conditions as described under the WSCP shortage levels:

- Article X, Section 2 of the California Constitution mandates that the water resources of the State be put to beneficial use to the fullest extent and that waste or unreasonable use or method of use of water be prevented.
- California Water Code Sections 350 and 71640 authorize the governing body of a municipal water district to find the existence or threat of a drought emergency or other threatened or existing water shortage, and that finding is prima facie evidence of the fact or matter so found, and such fact or matter shall be presumed to continue unchanged unless and until a contrary finding is made by the board by resolution or ordinance.
- Pursuant to California Water Code Sections 353 and 71641, the District may restrict the use of district water during the drought emergency or other water shortage condition and may prohibit the wastage of district water or the use of district water during such periods for any purpose other than household uses or other restricted uses as the District determines to be necessary.

- Pursuant to California Water Code Sections 376 and 71641 and Government Code Section 6061, the District must publish in a newspaper of general circulation any ordinance setting forth the restrictions, prohibitions, and exclusions determined to be necessary under Water Code Sections 353 and 71640 within 10 days after its adoption. The District's Board may adopt mandatory restriction and prohibitions on the consumption and use of water within the service area so that the water supply can be conserved for the greater public benefit.
- Pursuant to Water Code sections 350 and 71640, and for per the annual water supply and demand assessment, the Board may find the existence or threat of a drought emergency or other water shortage condition.
- The District shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency.

11 FINANCIAL CONSEQUENCES OF WSCP

Since the District bills its customers, in part, per unit volume of water consumed, the District would experience a reduction in revenue upon implementation of water conservation measures pursuant to the WSCP. The District may also experience expense increases related to increased public outreach, water waste patrols, emergency water transfers, and generators and fuel to allow for the transfer of water from Soulajule to Nicasio reservoir. To compensate for the expected revenue reduction caused by water conservation, the District may utilize reserves to the extent possible and has the authority to implement temporary drought rates, increasing water rates. Additionally, the District's Board of Directors may establish a water rate structure, including excess water use surcharges that provides incentives to conserve water. Individual customers may seek a waiver of excess water use surcharges through the variance process as described in Section 6.2.

12 MONITORING AND REPORTING

The District's local surface water supply and SCWA supply turnouts are all equipped with water meters. In addition, each potable water customer is metered. Non-residential landscape irrigation is metered separately from indoor use at most non-residential sites. The District reads meters on a bi-monthly basis and is able to document both demand reductions and a typically high water use. The District contacts individual customers to resolve issues related to a typically high water use.

Pursuant to California Code of Regulations (CCR) Title 23 §991, the District reports monthly water use and production to the SWRCB.⁴ Effective October 1, 2020, during a governor declared drought emergency or when an urban water supplier invokes a water shortage level to respond to a drought greater than 10%, each supplier is required to submit an expanded report that contains the supplier's actions and statistics in achieving planning reductions.

⁴ Water supplier monthly reports can be accessed at https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.html

13 WSCP REFINEMENT PROCEDURES

The WSCP is implemented as an adaptive management plan. The District will evaluate the need to revise its WSCP every year after performing its Annual Water Supply and Demand Assessment. The evaluation will consider the effectiveness of WSCP actions and any anticipated water supply shortages. If the WSCP is revised, the District Board of Directors will adopt a new resolution adopting the revised WSCP.

14 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

Prior to adopting the Plan, the District held a formal public hearing to present information on the Updated 2020 UWMP and WSCP on 19 December 2023 at 7:30 pm, in a virtual and in-person meeting.

The Updated 2020 UWMP and WSCP was adopted by Resolution No. 8768 by the District Board during its January 9 2024 board meeting. A copy of the resolution is included in **Attachment 2**. A copy of the adopted 2024 WSCP including any amendments will be provided to the Department of Water Resources (DWR), the California State Library, and Marin County within 30 days of the adoption. An electronic copy of the adopted 2024 WSCP will be submitted to the DWR using the DWR online submittal tool.

A copy of the adopted 2024 WSCP will be available for public review on the District's website within 30 days after filing the plan with DWR.

**ATTACHMENT 1: SONOMA COUNTY WATER AGENCY ANNUAL WATER SUPPLY
AND DEMAND ASSESSMENT PROCEDURES (SCWA WSCP APPENDIX C)**

This section presents the procedures that will be used by Sonoma Water to conduct an annual water supply and demand assessment (annual assessment). The annual assessment is required to be submitted annually to DWR beginning on July 1, 2022. The assessment forecasts near-term water supply conditions to ensure shortage response actions are triggered in a timely manner. The annual assessment will provide a description and quantification of each source of Sonoma Water's water supply compared to water demands for the current calendar year, with consideration of one subsequent dry year.

One of the most important functions provided by Sonoma Water is to monitor water supply conditions to gauge the likelihood of water shortages so that Sonoma Water's wholesale customers will be prepared to respond to the shortages. Sonoma Water constantly monitors the reservoir levels at Lake Pillsbury, Lake Mendocino, and Lake Sonoma, and estimates flows in and out of those reservoirs, weather forecasts, and natural flows into and diversions from the Russian River and Dry Creek. By using this data as well as historical data regarding water use in different climatic conditions, Sonoma Water can project when a water shortage may be imminent.

The following subsections describe the decision-making process and data and methodologies. Sonoma Water may modify these procedures based on its experience developing the annual assessment.

Decision Making Process

This section presents the decision-making process and timeline (see Table 1) that Sonoma Water will use each year to determine its water supply reliability. Sonoma Water may revise this decision-making process based on the experience gained from going through the process.

To develop the supply portion of the annual assessment, Sonoma Water staff will start monitoring water supply conditions in December prior to the January Decision 1610 trigger date for setting instream flow requirements per the water year classification specified in Decision 1610. Decision 1610 also requires an assessment of the water year classification and instream flow requirements at the beginning of each subsequent month until June 1, when it is set for the remainder of the year. Consequently, Sonoma Water staff will continue to monitor water supply conditions (reservoir levels, stream/river flows, soil moisture, precipitation, etc.) throughout this time period to ensure its assessment of water supply conditions are consistent with watershed hydrologic conditions and reservoir storage levels. The final annual assessment will include the actual supply conditions up to May. If a water shortage is forecast for the subsequent calendar year, the monitoring of water supply conditions would be conducted during the September to December period of the current calendar year.

To develop the demand portion of the annual assessment, the projections of water demand to be supplied by Sonoma Water for the calendar year and subsequent calendar year will be developed and provided by all of Sonoma Water's customers by February 1. Sonoma Water staff will use the most recent demand data to develop demand projections for those customers that do not provide projections. The annual assessment will consider all demands on Sonoma Water's system to establish the supply available for Sonoma Water's customers that must complete and submit their own annual assessments to DWR.

Sonoma Water will present and submit the annual assessment following the steps described below.

1. Present draft annual assessment to Sonoma Water's customers. The draft annual assessment will be presented to the TAC ad-hoc committee at the April meeting. The assessment will also be presented to the Sonoma Water's other customers. An initial evaluation will be made regarding the potential for a water shortage condition to occur. If a shortage is forecast for the current calendar year and particularly during the critical months of July to October, the initial implementation of WSCPs will be coordinated with all the customers.
2. Receive review comments. Sonoma water's customers will present their review comments including their updated demands and local supply projections at the May TAC meeting. Sonoma Water will communicate directly with Sonoma Water's other customers to obtain their review comments.
3. Present final annual assessment to the TAC. The final annual assessment report will be prepared and presented at the June TAC meeting. The annual assessment may be presented to the WAC. Sonoma Water will coordinate through the TAC to identify if any water supply gaps exist for each customer when considering both Sonoma Water supplies and local supplies. The assessment will be provided directly to Sonoma Water's other customers.
4. Optional presentation of the annual assessment to the Board of Directors. The annual assessment may be presented to Sonoma Water's Board of Directors during one of their regularly scheduled meetings, particularly if a shortage is anticipated or if an existing shortage condition is to be ended.
5. Submit annual assessment to DWR. Sonoma Water will submit the annual assessment report to DWR by July 1 of each year.

Table 1. Annual Assessment Timeline							
Task	Dec	Jan	Feb	Mar	Apr	May	Jun
Monitor and forecast water supply conditions							
Sonoma Water's customers develop and provide water demand forecast by February 1.							
1. Present draft annual assessment to Sonoma Water's customers							
2. Receive review comments							
3. Present final annual assessment to the TAC							
4. Present annual assessment to the Board of Directors							
5. Submit annual assessment to DWR (due July 1 st)							

Data and Methodologies

This section presents the key data inputs and assessment methodology that will be used to evaluate Sonoma Water's water supply. The evaluation criteria, water supply, unconstrained demand, water supply, planned water use, infrastructure considerations, and other factors are described.

Evaluation Criteria

The evaluation criteria that will be relied on for each annual assessment include the key data inputs and the constraints that are imposed on the water supplies.

The key data inputs that are used by Sonoma Water staff to forecast water supply for the remainder of the current year and a subsequent dry year include the items described below.

- **Unconstrained customer demand.** Current and subsequent calendar year unconstrained demand for each of Sonoma Water's wholesale customers considering weather, growth, and other influencing factors.
- **Russian River operations.** Current reservoir releases from Lake Sonoma and Lake Mendocino, including anticipated releases to meet in-stream flow requirements and water demands and based on reservoir curves and forecast informed reservoir operations (FIRO) decision support tools.
- **Hydrology and watershed conditions.** Lake Sonoma and Lake Mendocino inflows and storage levels, and soil moisture.
- **Potter Valley Project inflows.** Lake Pillsbury storage levels and observed and projected project transfers.
- **Weather forecasts and historical hydrological records.** Weather forecasts combined with historical records will be used to evaluate probabilities using statistical methods.

The water supply constraints are due to a variety of agreements and decisions, as follows.

- **Lake Sonoma storage level.** Sonoma Water's water rights permits include a provision that requires Sonoma Water to impose a 30 percent reduction in deliveries from the Russian River to its service area when Lake Sonoma storage levels drop below 100,000 acre-feet (ac-ft) before July 15 of any year. This provision is described in more detail in Section 5.1.6.1 in the 2020 Plan.
- **Lake Mendocino storage level.** Having a sufficient supply of water in Lake Mendocino in the fall is of critical importance to the salmonid species in the Russian River and to meet municipal and industrial demands and agricultural irrigation needs.
- **Minimum instream flow requirements.** The minimum instream flow schedule varies based on the hydrologic classifications of Normal, Dry, and Critical water supply conditions as defined in Decision 1610. These classifications will be revised using a new hydrologic index. Minimum instream flow requirements for the Russian River and Dry Creek are met by releases from Coyote Valley Dam and Warm Springs Dam.
- **Flood control operations criteria.** The United States Army Corps of Engineers (USACE) determines the schedule and amount of water released from Lake Mendocino and Lake Sonoma during flood control operations when storage levels exceed the water supply storage pool. Rules of the water control manuals of the reservoirs (USACE, 1984 & 2003) require the flood control pool to be empty except during periods of high flows downstream. During high flow events water is temporarily detained in the flood control pool (above the water supply pool), and later released at rates that avoid exceeding downstream flood stage.
- **Maximum flow releases from Warm Springs and Coyote Valley Dams.** The Lake Mendocino and Sonoma water control manuals define maximum release that are a function of reservoir water elevation or storage level. The maximum release schedules typically only apply during flood control operations. Releases from the reservoirs are further constrained by rules that define the maximum rate of change of release (ramping rates) to minimize rapid changes in stage downstream and avoid

fish stranding. These ramping rates were defined in a 2016 letter to the USACE from the National Marine Fisheries Service (NMFS) (NMFS, 2016).

- **The Russian River Biological Opinion.** The Russian River Biological Opinion places certain terms and conditions on the Sonoma Water with respect to its water supply operations.

Water Supply

The Russian River provides most of Sonoma Water's water supply with groundwater supply from the Santa Rosa Plain as a secondary source. Sonoma Water diverts water from the Russian River near Forestville and conveys the water via its transmission system to its customers. Sonoma Water's 2020 Plan (Section 5) provides a more detailed description of the water supplies. The method used to forecast the quantify of water supply is described in Section 3.2.4 below.

Almost all of Sonoma Water's customers, surplus customers, and Russian River customers have other water supplies, in addition to those provided by Sonoma Water, which include local surface water, local groundwater, and recycled water. These local supplies will not be included in the assessment. Each customer will develop its own assessment of their available supplies.

Unconstrained Customer Demand

The assessment will present the current year unconstrained demands from Sonoma Water's customers, considering weather, growth, and other influencing factors. The unconstrained water demands will be provided by the customers or developed by Sonoma Water.

Planned Water Use for Current Year Considering Dry Subsequent Year

The assessment will present an evaluation of the amount of anticipated water supplies for the current calendar year as well as how the supplies will be used, while anticipating that the following calendar year will be dry.

The annual assessment will be based on evaluating the key data inputs to determine the water supply reliability. The methodology to develop the annual assessment will follow the general approach described below.

1. Quantify current calendar year water supply. The available water supply from all water supply sources will be estimated for the current calendar year based on the data inputs, evaluation criteria, and hydrological and regulatory conditions. The current calendar year consists of the latter portion of the current wet season and the earlier portion of the subsequent wet season. Sonoma Water staff will evaluate water supply conditions beginning at least mid-month prior from January to June to determine whether anticipated conditions warrant any actions by Sonoma Water. The wet season that starts in the Fall of the current year will be assumed to be dry as described in the next step. The projections of the water supply will be expressed as a range and based on the results of operations modeling of the Russian River system consisting of the statistical evaluation of multiple scenarios. The model is described later in this subsection. Figure 1 presents the key considerations for the assessment of Russian River supply conditions.

2. Quantify subsequent calendar year supply. The subsequent calendar year water supplies will be estimated by assuming that the next wet season that starts at the end of the current calendar year will be dry. Sonoma Water will select the climate type for the wet season that starts at the end of the subsequent calendar year. Sonoma Water will base the estimate of dry season water supplies on a statistical analysis of the historical precipitation record and the selection of an appropriate

exceedance frequency. The details of the methodology will be defined in the development of the assessment.

3. Identify infrastructure constraints. The existing infrastructure capabilities and plausible constraints as they impact Sonoma Water's ability to deliver supplies to meet expected customer water use needs in the coming year will be considered.
4. Quantify unconstrained water demand. The unconstrained water demands for all the customers will be provided by the customers or developed by Sonoma Water staff.
5. Compare projected water supplies to demands. The water supplies identified in the annual assessment will represent the water demand that can be met while maintaining adequate storage in Lake Mendocino and Lake Sonoma.
6. Identify and quantify anticipated water supply shortages, if any. The forecast of water supplies in comparison to water demands will identify and quantify any anticipated water shortages for the current calendar year. The forecast will be coordinated with Sonoma Water's customers, surplus customers, and Russian River customers. Depending on the extent of the forecast shortage, the appropriate shortage stage will be selected. If the early winter season has been wet and the forecast is for a wet season, there would be no concerns. If the season was dry in the early wet season, there would be a potential concern and river flows and reservoir levels would be monitored more closely. Depending on the extent of precipitation in the latter portion of the wet season, the forecast could be changed to no concern or to an anticipated shortage.
7. Implications of forecasted water shortage. Depending on the extent of the forecasted water shortage for the current calendar year and particularly the summer months, Sonoma Water may implement voluntary reductions of its diversions and request it customers to conserve and utilize local supplies. The State Water Resources Control could also mandate reduction of diversions by Sonoma Water. For example, mandatory reductions would be required (as specified in Sonoma Water's water rights) if Lake Sonoma levels reached 100,000 ac-ft by July 15 of a given year. Such reductions would be implemented in accordance with the applicable provisions of the Restructured Agreement and consistent with the defined shortage stages. If a shortage is identified, the water shortage allocation methodology specified by the Restructured Agreement would be used to allocate the reduced supply to each customer. Each of Sonoma Water's customers would develop their own annual assessments that will include estimates of their projected quantity of local water supplies.

The forecast of the amount of available water supplies will be developed by Sonoma Water using the Russian River System Model (RR ResSim). The model is used as a planning tool to simulate the effects of various climatic conditions, levels of demand, and operational criteria on the water supply available for use by Sonoma Water and others.

Infrastructure Considerations

The annual assessment will include an evaluation of how infrastructure capabilities and constraints may affect Sonoma Water's ability to deliver supplies to meet expected customer water use needs in the current year.

Other Factors

The annual assessment will describe any other locally applicable factors that could influence the amount of available water supplies.

Summary: D1610 contains trigger points at the first of the month (January – June) to establish the Hydrologic Index (HI) based on cumulative inflows into Lake Pillsbury (Eel River). Sonoma Water staff evaluate water supply conditions (as shown in Figure 1 below) beginning at least mid-month prior to each of the D1610 trigger dates to determine whether anticipated conditions at the trigger date warrant any actions by Sonoma Water. This assessment process may be revised to consider a changed HI based on the Fish Flow Project as described in Section 5.1.6.1 of the 2020 Plan. While D1610 is currently used, a proposal to change Sonoma Water’s water rights may require an updated methodology.

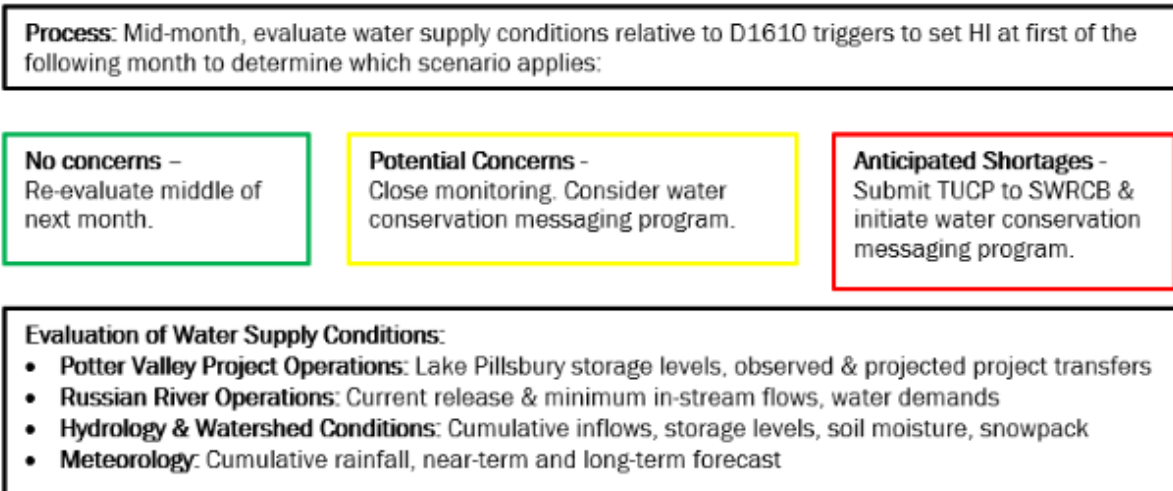


Figure 1. Assessment of Russian River Supply Conditions.



ATTACHMENT 2 WATER SHORTAGE CONTINGENCY PLAN RESOLUTION

MARIN MUNICIPAL WATER DISTRICT

RESOLUTION NO. 8768

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MARIN MUNICIPAL WATER DISTRICT
ADOPTING
THE UPDATED 2020 URBAN WATER MANAGEMENT PLAN**

WHEREAS, the California Urban Water Management Planning Act requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually for municipal purposes to prepare and adopt an Urban Water Management Plan every five years; and

WHEREAS, the Marin Municipal Water District (District) meets the definition of an urban water supplier and has prepared Urban Water Management Plans since 1985, with the last update in 2020, with an updated to the Water Shortage Contingency Plan adopted on February 21, 2023; and

WHEREAS, the District prepared the draft Updated 2020 Urban Water Management Plan in accordance with the requirements and procedures set forth in the Urban Water Management Planning Act; and

WHEREAS, a public hearing for the Updated 2020 Urban Water Management Plan was held on the 19th day of December 2023; and

WHEREAS, notice of the time and place of said public hearing was duly given and published pursuant to California Government Code 6066 and the draft Urban Water Management Plan was made available to the public for review per the California Water Code Section 10642 two weeks prior to the public hearing for two consecutive weeks; and

WHEREAS, the District Board of Directors considered the Updated 2020 Urban Water Management Plan during the public hearing held on December 19, 2023, and other testimony and public comments provided at the hearing.

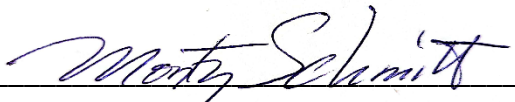
NOW THEREFORE, BE IT HEREBY RESOLVED, that the Board of Directors hereby adopts the Updated 2020 Urban Water Management Plan, including final modifications incorporated based on comments received during the public hearing.

PASSED AND ADOPTED this 9th day of January, 2024, by the following vote of the Board of Directors.

AYES: Directors Matt Samson, Jed Smith, Ranjiv Khush, and Monty Schmitt

NOES: None

ABSENT: Director Larry Russell


Monty Schmitt
President, Board of Directors

ATTEST:


Terrie Gillen
Board Secretary

ATTACHMENT 3: WATER SHORTAGE RESPONSE ACTIONS: PROHIBITIONS AND DISTRICT ACTIONS

DRY CONDITIONS STAGE

Shortage Level 1: 10% Voluntary (Trigger at Reservoir Storage < 70,000 acre-feet April 1)

Prohibitions on End Users

Water Waste Prohibitions outlined in District's Title 13.02

District Actions

Operations

- Increase supplemental water imports and closely monitor storage levels and weather conditions
- Enact dry year stream release flow restrictions

Outreach

- Initiate public outreach campaign to communicate about dry conditions
- Education focused on ongoing prohibitions and water waste reporting
- Provide list of simple actions that can be done to save water (e.g., use a broom instead of hosing down a sidewalk)
- Explain drought situation to the public and governmental bodies via "Drought Watch" to provide a snapshot of the water supply picture, restrictions, and water conservation tips
- Promote the Weekly Watering Schedule
- Explain other stages and forecast future actions

ADVISORY STAGE

Shortage Level 2: 20% Voluntary (Trigger at Reservoir Storage < 65,000 acre-feet April 1)

Prohibitions on End Users

Water Waste Prohibitions outlined in District's Title 13.02.020

District Actions

Operations

- Continue to maximize supplemental water imports and closely monitor storage levels and weather conditions
- Minimize system flushing
- Initiate water waste patrols

Outreach

- Accelerate public information and increase outreach
- Communicate up to 20% voluntary reduction goals
- Develop internal speakers bureau to provide education presentations to community groups



- Develop (or use existing) brief and simple educational videos that cover topics normally touched on during water efficiency phone consultations
- Provide outreach toolkit to cities in service area of drought conditions to ensure collaboration
- Encourage use of graywater and weather-based landscape watering
- Explain other stages and forecast future actions

Drought Rates

- Implement drought rates consistent with District-wide targeted water savings

ALERT STAGE

Shortage Level 3: 30% Mandatory (Trigger at Reservoir Storage < 55,000 acre-feet April 1)

Prohibitions on End Users

- Water Waste Prohibitions outlined in District's Title 13.02.020, with trigger for additional Stage 3 measures, as follows:
- Washing vehicles with potable water except at commercial carwash facilities that use recycled water, is prohibited.
- Use of potable water for refilling or make-up water of any decorative water features, is prohibited.
- Golf course irrigation, with potable or raw water, shall be irrigated up to 70% of the sites Maximum Applied Water Allowance per District Water Efficient Landscape Code Appendix A.
- Power-washing any structure using potable water, unless required for health and safety as required by Marin County Health Department.
- Limit sewer cleaning/flushing to only recycled water.
- Use of potable water for dust control, soil compaction, street cleaning, or any other use, as determined by the District, which can be met with disinfected tertiary recycled water.

District Actions

Operations

- Continue to maximize supplemental water imports and closely monitor storage levels and weather conditions
- Continue water waste patrols to align with Prohibitions on End Users
- Increase system leak repair rate
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix

Outreach

- Accelerate public information program, outreach campaign, and communication with news media to help amplify messaging
- Provide updated outreach toolkit to cities to ensure collaboration

- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering
- Explain other stages and forecast future actions

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

SEVERE STAGE

Shortage Level 4: 40% Mandatory (Trigger at Reservoir Storage < 45,000 acre-feet April 1)

Prohibitions on End Users

- Water Waste Prohibitions outlined in District's Title 13.02.020
- Washing vehicles with potable water except at commercial carwash facilities that use recycled water, is prohibited.
- Decorative water features, including the refilling or make-up of any decorative water features, is prohibited.
- Power-washing any structure using potable water, unless required for health and safety as required by Marin County Health Department.
- Limit sewer cleaning/flushing to only recycled water.
- Use of potable water for dust control, soil compaction, street cleaning, or any other use, as determined by the District, which can be met with disinfected tertiary recycled water.
- Golf course irrigation, with potable or raw water, shall be irrigated up to 60% of the sites Maximum Applied Water Allowance per District Water Efficient Landscape Code Appendix A.
- Limit irrigation to 1 day per week, assigned by the District.
- No installation of new landscapes including no expansion of existing landscapes.
- Request that local fire departments limit training exercises that use potable water and cease hydrant testing.

District Actions

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix
- Increase system leak repair rate to prioritize class 1-3 leaks
- Increase water waste patrols to align with Prohibitions on End Users
- Consider Temporary Urgency Change Petition

- Consider Declaration of Water Shortage Emergency
- Consider limiting or excluding new service connections.

Outreach

- Provide information to customers about trees preservation during drought conditions
- Accelerate public information program, outreach campaign, and communication with news media to help amplify messaging
- Provide updated outreach toolkit to cities to ensure collaboration
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering
- Explain other stages and forecast future actions

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

CRITICAL STAGE

Shortage Level 5: 50% Mandatory (Trigger at Reservoir Storage < 35,000 acre-feet April 1)

Prohibitions on End Users

- Water Waste Prohibitions outlined in District's Title 13.02.020
- Washing vehicles with potable water except at commercial carwash facilities that use recycled water, is prohibited.
- Decorative water features, including the refilling or make-up of any decorative water features, is prohibited.
- Use of potable water for dust control, soil compaction, street cleaning, or any other use, as determined by the District, which can be met with disinfected tertiary recycled water.
- No installation of new landscapes including no expansion of existing landscapes.
- Power-washing any structure using potable water, unless required for health and safety as required by Marin County Health Department.
- Limit sewer cleaning/flushing to only recycled water
- Request that local fire departments limit training exercises that use potable water and cease hydrant testing.
- Irrigation restricted to maintain tree health for all potable and raw water customers, including golf courses.
- Refilling a completely drained swimming pool and initial filling of any swimming pool for which application for a building permit was made after District specified date.
- Establish Water Use Limits and associated penalties

District Actions

Operations

- Continue to maximize Sonoma Water supplemental water imports and closely monitor storage levels and weather conditions
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix
- Increase system leak repair rate
- Increase water waste patrols
- Implement Temporary Urgency Change Petition
- Implement Water Use Limits and Penalties
- The Board shall consider a moratorium on new water service connections, or no net water use requirements for new connections.

Outreach

- Accelerate public information program, outreach campaign, and additional communication with news media to help amplify messaging
- Provide updated outreach toolkit to cities to ensure collaboration
- Explain other stages and forecast future actions
- Communicate Water Use Limits and associated penalties
- Provide information to customers about trees preservation during drought conditions
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

EMERGENCY STAGE

Shortage Level 6: > 50% Mandatory (Trigger at Reservoir Storage < 25,000 acre-feet April 1)

- Water Waste Prohibitions outlined in District's Title 13.02.020
- Washing vehicles with potable water except at commercial carwash facilities that use recycled water, is prohibited.
- Decorative water features, including the refilling or make-up of any decorative water features, is prohibited.
- Use of potable water for dust control, soil compaction, street cleaning, or any other use, as determined by the District, which can be met with disinfected tertiary recycled water.

- No installation of new landscapes including no expansion of existing landscapes.
- Power-washing any structure using potable water, unless required for health and safety as required by Marin County Health Department.
- Limit sewer cleaning/flushing to only recycled water
- Refilling a completely drained swimming pool and initial filling of any swimming pool for which application for a building permit was made after District specified date.
- Request that local fire departments cease training exercises that use potable water and cease hydrant testing.
- The use of potable water for any purpose other than human health and sanitation is prohibited.
- Implement Health and Safety Water Allotments.
- New water service connections will not be granted.

District Actions

Operations

- Continue to maximize supplemental water imports and closely monitor storage levels and weather conditions
- Restrict line flushing to include only regulatory compliance actions
- Access stored Emergency Supply - Soulajule and Phoenix
- Increase system leak repair rate
- Increase Water waste patrols
- Implement Temporary Urgency Change Petition
- Decrease Water Use Limits and implement issuance of penalties to align with Health and Safety Water Allotments

Outreach

- Accelerate public information program, outreach campaign, and additional communication with news media to help amplify messaging regarding Health and Safety Water Allotments
- Provide updated outreach toolkit to cities to ensure collaboration
- Explain other stages and forecast future actions
- Provide information to customers about trees preservation during drought conditions
- Reduce Weekly Watering Schedule to deficit irrigation
- Continue to encourage use of graywater and weather-based landscape watering

Drought Rates

- Drought rates will continue to increase based on declaration of water shortage stage and water savings target.

ATTACHMENT 4: WATER WASTE PROHIBITIONS IN EFFECT AT ALL TIMES

13.02.020 Water waste prohibitions.

No customer of the district shall make, cause, use or permit the use of potable water from the district for residential, commercial, industrial, agricultural, governmental or any other purpose in a manner contrary to any provision of this section.

(1) Prohibited Nonessential Uses Applicable to Customers. It is unlawful for any person, firm, partnership, association, corporation, or political entity to use potable water from the district for the following nonessential uses:

- (A) The washing of sidewalks, walkways, driveways, parking lots and all other hard surfaced areas by direct hosing, except as may be permitted by current regulations pertaining to urban water runoff pollution prevention as defined by the Marin County Stormwater Pollution Prevention Program and other controlling agencies.
- (B) The escape of water through breaks or leaks within the consumer's plumbing or private distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 48 hours after the consumer discovers such a leak or break, or receives notice from the district of such leak or break, whichever occurs first, is a reasonable time within which to correct such leak or break.
- (C) Non-recycling decorative water fountains.
- (D) Restrictions on Irrigation. Irrigation shall not be conducted in a manner or to an extent that allows water to run off or overspray the areas being watered. Every consumer is required to have his or her water distribution lines and facilities under control at all times to avoid water waste.
- (E) Any excess water runoff flowing onto the public right-of-way at a rate of one gallon per minute or greater not caused by storm water or naturally occurring groundwater, is prohibited.
- (F) Using a garden hose without a shut-off nozzle.
- (G) Landscape irrigation between the hours of 9:00 a.m. and 7:00 p.m.
- (H) Operating outdoor sprinkler irrigation systems delivering overhead spray more than two days within any calendar week and drip irrigation more than three days per week within any calendar week, but excluding hand-watering. For the purpose of this section, "calendar week" shall mean a period running from Monday-Sunday.
- (I) The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall.
- (J) Irrigating ornamental turf on public street medians.

(2) Restrictions on Reverse Osmosis Units. The installation of reverse osmosis water purifying systems not equipped with an automatic shutoff unit is prohibited.

(3) The following are prohibited for new connections:

- (A) Single pass cooling systems for air conditioning or other cooling system applications unless required for health or safety reasons;
- (B) Non-recirculating systems for conveyer carwash applications.

(4) Exemption From Daytime Water Prohibition. Notwithstanding anything contained in this Title 13, testing and repairing irrigation systems for the purpose of eliminating water waste is permitted during the hours of 9:00 a.m. and 7:00 p.m.

(5) Sewer cleaning/flushing should be done using recycled water when available without hauling by truck and whenever reasonably possible. (Ord. 461 §2, 2022)

13.02.021

3(C) Pool and Spa Covers. All recreational pools and spas shall have covers, subject to the variance provisions as set forth in Section 13.02.050.

(6) Drinking Water Served Upon Request Only. By January 1, 2011, eating or drinking establishments, including, but not limited to, a restaurant, hotel, café, cafeteria, bar, or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.

(7) Commercial Lodging Establishments Must Provide Guests Option to Decline Daily Linen Services. By January 1, 2011, hotels, motels and other commercial lodging establishments shall provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments shall prominently display notice of this option in each bathroom using clear and easily understood language.

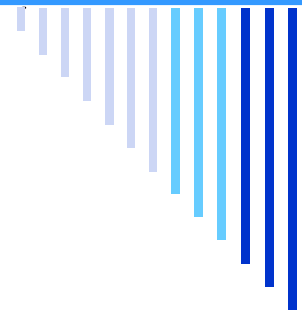
11.32.090

No consumer shall cause or permit any water furnished to his property by the district to run to waste in any *gutter* or otherwise. The district may, after one warning, terminate the service of any consumer pursuant to Chapter 11.28 for failure to comply with the foregoing rule. Restoration of service may be conditioned upon installation of a flow restrictor on the consumer's service. Fees will be charged for the flow restrictor and installation or removal in addition to the turn-on charge provided for in Section 11.08.150. (Ord. 314 §2, 1990)

11.50.010 Private fire taps.

A "private fire tap" means a service to provide water for a private fire hydrant, fire sprinkler system or other fire protection installation. Private fire taps may be granted solely to provide water for fire protection and each private fire tap shall have an approved backflow assembly and bypass meter. A single detector check valve may be used when replacing a single detector check valve when a private fire tap upgrade is required as described in Section 11.56.015. The district's system shall extend approximately to the curb line or edge of the public right-of-way, and shall end with an insulating spool piece or kit, but shall not include the detector check valve, or above ground backflow device. All bypass piping, except the meter owned by the District, shall be the responsibility of the consumer. (Ord. 416 §3, 2010; Ord. 314 §2, 1990; Ord. 176 §1, 1978)

Appendix H: 2007 Water Conservation Plan



MARIN MUNICIPAL WATER DISTRICT

2007 Water Conservation Master Plan



Adopted June 20, 2007

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Acknowledgments

Marin Municipal Water District 2007 Board of Directors

Cynthia Koehler, President
 Larry Russell, Vice President
 David Behar, Director
 Alex Forman, Director
 Jack Gibson, Director

Paul Helliker
 General Manager

Daniel Carney
 Water Conservation Manager

MMWD has made every effort to be accurate and complete in the presentation of this report. Thanks to the many individuals who have contributed the ideas, questions, and comments that have made the preparation of this Master Plan possible, some of whom are recognized as follows:

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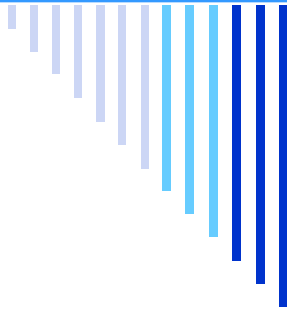


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INTRODUCTION

In 2007, the relationship between human activities and the resulting environmental impacts is a fact accepted by most people. We *know* we must act now in order to protect natural resources for future generations. Water is no exception. Worldwide, overuse and mismanagement of water supplies lead to over-drafted aquifers, depleted fisheries, habitat degradation, water-borne diseases, war, and economic hardship.

Marin is an oasis. Sweet, clean water runs off local mountains and flows abundantly in most years. If it were not for the problems of limited storage, recurring droughts, a growing population, and the financial and environmental costs of developing new water supplies, the need to increase efficiency would be less urgent. In light of these problems, it is appropriate for the District to redouble conservation efforts and sustain them in the future.

Conservation, however, is not intended to be a stand-alone strategy for managing the District's water portfolio. Efficiency measures have a point of diminishing returns, just as reservoirs have a limited storage capacity. Although there is a significant amount of water to be conserved in Marin, at a certain point it becomes too difficult, expensive, or inconvenient to use less water and still maintain a customary standard of living.

Ongoing capital improvements will always be necessary to increase system operating efficiencies and provide a hedge against catastrophic drought emergencies. To this end, the District is analyzing the benefits of detecting and repairing leaky pipes, augmenting delivery capacity, modernizing outdated equipment, entering into cooperative supply agreements with neighboring water agencies, and exploring new filtration technologies.

How much water can ultimately be conserved on a sustained, normal year basis? What will be the water demand in 2025? Will we get more or less rain due to global climate change? There are no certain answers to these questions. History shows us that conservation programs reliably and permanently reduce water demand. We do know that new water-saving products are in the stores today and more are being developed, and that the cost of these products will drop over time as more manufacturers enter the market in response to greater demand. We also know that public education is the golden key that can unlock and sustain the greatest water conservation potential.

Public opinion surveys indicate that the citizens of Marin value a healthy environment and that they value water conservation as one of the most important solutions to the ongoing specter of inadequate water supply. These surveys also indicate that most MMWD customers believe they are doing all they can to conserve water. Clearly, there are opportunities to educate our customers on new, cost-effective ways to use our water supplies as efficiently as possible.

In this Master Plan, the terms *water conservation* and *water efficiency* are used interchangeably to mean the practice of making the *best use of water resources*. The basic goal of the Plan is to draw a conservation trail map for the District. Several program options are presented, and all trails lead to the same destination—a future where water waste is reduced, the environment is protected, and water rates are based on the efficient use of available resources.

Reliability

In order to evaluate the reliability of water efficiency programs and the savings they can provide, two fundamental concepts come into play:

- ***Technical Savings Potential***: savings resulting from the installation of efficient plumbing fixtures such as high-efficiency toilets, clothes washers and irrigation systems; and from maintaining the water system infrastructure.
- ***Behavioral Savings Potential***: savings resulting from activities such as taking shorter showers, turning off faucets, and reducing landscape watering.

The results the District can achieve by targeting both of these savings potentials are more than twice as great as the technical savings alone. This *elasticity* is a key concept that must be understood when determining the investment value of technical and behavioral programs such as plumbing fixtures and customer education.

Technical Savings comprise more than 90% of the potential water savings, costs, and benefits associated with the various conservation program options in this Plan. This is the 'standard method' used in the conservation industry because it is the most objective method to forecast future savings. It is more difficult to create a formula that predicts how people will behave. Fortunately, a method has been devised to quantify behavioral savings. Bill Maddaus, a recognized expert in the field of water efficiency, has calculated the behavioral savings that can be gained when people take shorter showers, fix leaks, and turn off running faucets. These detailed calculations are included in Appendix A, starting on page 37 of the *Maddaus Conservation Technical Analysis*.

The calculation below estimates the percentage of savings from technical and behavioral actions based on the calculations in Table 10 of the Maddaus Analysis. (Note: The behavioral savings of 500 acre feet represents 10% of the total conservation savings shown for Program D in Appendix A, Table 10, page 41 of the Maddaus Analysis.)

Plumbing Code	=	1,600 acre feet per year
<u>Conservation Savings (technical)</u>	=	<u>2,900 acre feet per year</u>
<i>Technical Savings Potential</i>	=	<i>4,500 acre feet per year</i>
25% Drought Ordinance	=	7,000 acre feet per year
<u>Conservation Savings (behavioral)</u>	=	<u>500 acre feet per year</u>
<i>Behavioral Savings Potential</i>	=	<i>7,500 acre feet per year</i>

Total District Potential in 2025 = 12,000 acre feet per year
(Plumbing Code + Technical + Behavioral)

The savings potential of daily activities can be illustrated with a simple ‘shower scenario’:

If a 2.5 gallon-per-minute shower head is replaced with a 2.0 gallon-per-minute shower head, the savings can easily be formulated: i.e., **0.5 gallon-per-minute** is the *technical savings* potential for that shower head replacement—a **20%** savings per minute. If the person takes a 10-minute shower, then the technical savings would be **5 gallons** (10 minutes x 0.5 gallon-per-minute).

Plus, there is a *behavioral savings potential*. How much more water would be saved if this person reduced their shower time from 10 minutes to 6 minutes? A 4-minute shorter shower would result in *behavioral savings* of **8 gallons** (4-minutes x 2.0 gallons-per-minute).

To recap:

Original 2.5 gpm shower head x 10 minutes	= 25 gallons
<u>New 2.0 gpm shower head x 6 minutes</u>	<u>= 12 gallons</u>
Savings for each shower	= 13 gallons

Savings elasticity can work in both directions, however, as customers can reduce or increase their water use. Increases in average water use are common whenever water agencies reduce conservation activities in the years following drought emergencies. This phenomenon is seen at MMWD today, where average water use is gradually increasing 15-years after the last drought and following a period of significant decreases in conservation program activity.

On the other hand, increases in conservation activities typically result in reductions in average consumption. This has been observed since 1991 with the enactment of conservation legislation and the implementation of sustained conservation programs in California. Every major water purveyor in California reports that total water consumption has remained virtually unchanged due to conservation—despite significant increases in population:

“While the District’s customer base has increased by more than 20% and the population increased by more than 10% between 1970 and 2004, use in 2004 was essentially the same as use in 1970 due to a variety of water conservation efforts now in place.”

Source: MMWD UWMP 2005

If the District was able to achieve the deployment rates of water-efficient technologies projected in the Maddaus analysis, and if we succeed in securing ongoing behavioral changes among our customers, or when required during infrequent 25% demand reduction rationing events, it could be possible to achieve water use savings of approximately **12,000** acre feet per year by 2025.

It is important to remember, however, that behavioral savings require ongoing effort to sustain them, while technical savings are less dependent on behavior and therefore more reliable. Additionally, it is important to note that the calculations in this Plan describe changes in customer's water *Demand*, and are completely separate from, and different than, MMWD's *supply* or *operational yield* calculations.

The most efficient and cost-effective conservation programs target both behavioral and technical savings. Providing thousands of rebates for toilets and clothes washers is expensive. Instead, if we can inspire (or require) people to buy these fixtures without a rebate, it can cost the District less money and achieve the same water-saving results.

The strategy recommended in this Master Plan places a greater emphasis on 'human resources' than on plumbing fixtures, per se, although both are essential components of each program alternative. Incentive programs, new development ordinances, and building codes generate the technical savings, while school education, public outreach, and customer survey programs create the social awareness needed to harvest the even greater behavioral savings.

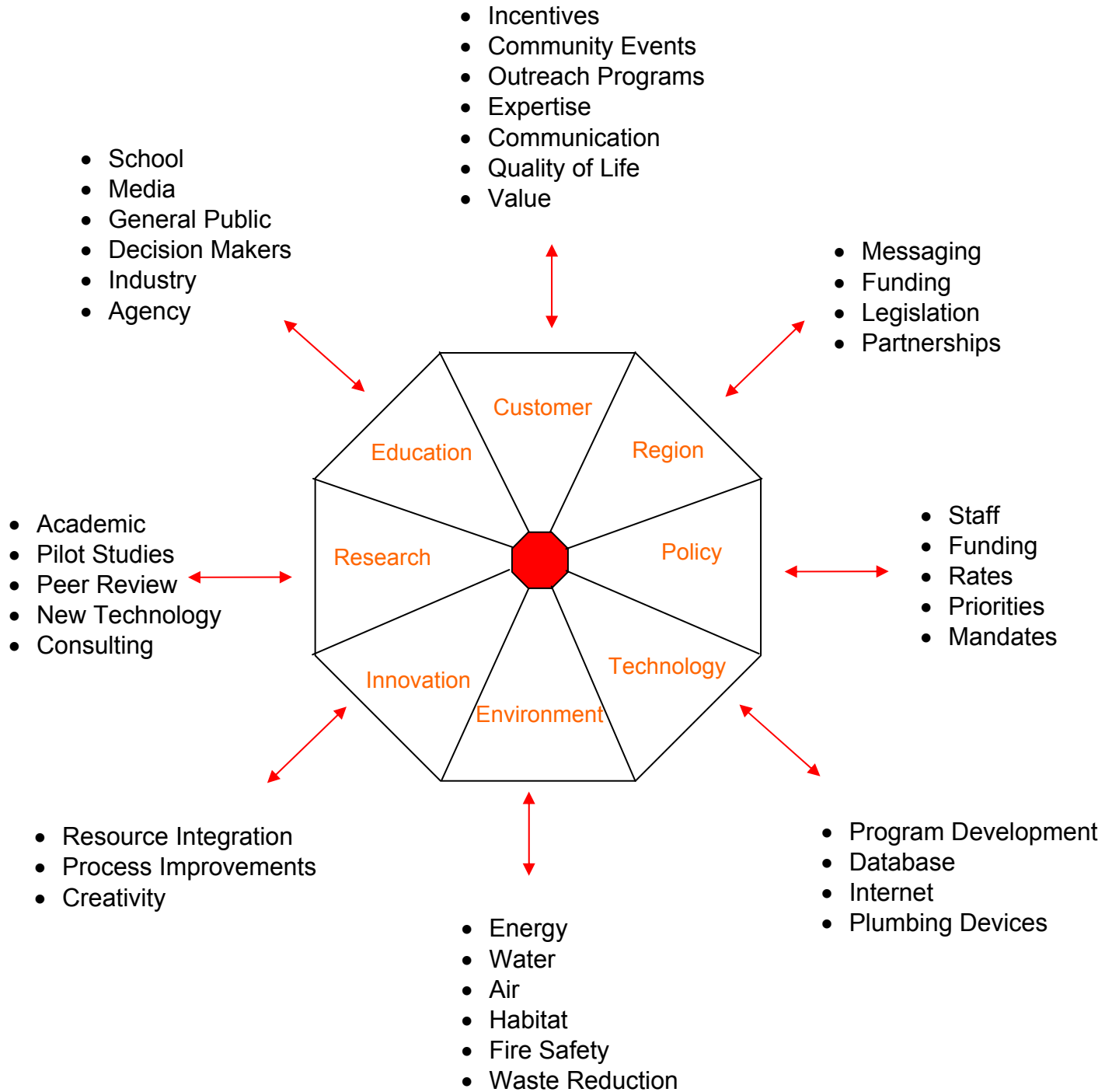
There are financial impacts to the District and its customers when normal year water use is decreased *and* when it is increased. This Plan calculates costs and potential water savings associated with decreasing normal year water use in the District. A growing body of research indicates that combined "**triple bottom-line**" benefits—i.e., benefits to the *District + Customer + Environment*—exceed the relatively simple cost/benefit calculations included in this Plan. Numerous environmental impacts (and costs) are reduced when communities become more water efficient. Staff recommends that the District conduct advanced research to quantify the regional costs and benefits associated with environmental changes resulting from conservation activities. Areas of interest may include climate change, greenhouse gases, energy consumption, waste water, urban runoff pollution, air quality, water quality, invasive plants, fire safety, and changes in native habitats.

Modern water efficiency programs have been operating in California for almost two decades. Since 1991, research and field experience have demonstrated that these programs are the most cost-effective and reliable first line of defense for worsening water problems. Less waste means lower energy use, less urban runoff pollution, extending available storage supplies, more water for fisheries, reduced waste water treatment and discharge, downsizing or eliminating costly new water projects, and being better prepared to weather the next drought.

This Plan examines District conservation programs in the past, present, and future—from the 1970s through 2030. It incorporates the history of water shortages, current and future demands, marketing strategies, and the costs and benefits of conservation programs. Information is taken from a variety of sources including the general public, consultants, water agencies, Conservation Action Committee meetings, the Board of Directors, and District staff. The primary source materials referenced in the Plan include:

- *Water Conservation Baseline Study Final Report (DMC 1994)*
- *Water Efficient Conservation Master Plan (Barakat & Chamberlin 1994)*
- *Water Entitlement and Water Budget Program Report (MMWD Staff 1995)*
- *Water Conservation Action Plan for 1997 (MMWD Staff 1997)*
- *Review of Conservation Activities Final Report (Fiske, Stout, Nelson 2001)*
- *MMWD Urban Water Management Plan 2005 (MMWD Staff 2005)*
- *2006 Water Management Report (MMWD Staff 2006)*
- *Conservation Technical Analysis (Maddaus 2007)*
- *Memorandum of Understanding Regarding Water Conservation in California (CUWCC, Amended 2007)*

A well-structured conservation program is complex and is woven into the social fabric of the community. **Figure 1** shows relationships among elements in a model conservation program:

FIGURE 1**RELATIONAL MODEL OF AN URBAN WATER CONSERVATION PROGRAM**

EXECUTIVE SUMMARY

Today, MMWD is increasing conservation activities in response to rising water demand caused by increasing population and 15 years of relatively drought-free conditions. In 2006 – 2007, the conservation department completed a major reorganization and embarked on a long-term strategy to strengthen relationships with MMWD customers and resource agencies in the region. Every program element is under review and is being revised as needed.

This strategy is based on several basic principles:

- Incentives are the backbone of effective conservation programs.
- Positive conservation messages build customer confidence and goodwill in the District.
- Customer participation increases when programs emphasize services rather than penalties and enforcement of ordinances.
- High-visibility public outreach and education programs are essential in order for conservation programs to achieve sustainable long-term reductions in demand.
- Water pricing is a powerful conservation tool that provides reliable improvements in efficiency.
- A conservation-focused analysis of the District's tiered rate structure, entitlements, connection fees, and water budgets is required.
- A revision of all conservation ordinances is required.

Program Analysis

The District has completed two studies of the District's water conservation potential in the past year:

- *2006 Water Management Report (MMWD)*
- *Conservation Technical Analysis (Maddaus)*

In April 2006, the Water Management Report was completed by District staff to accomplish three goals:

1. Calculate water savings resulting from conservation activities in the District from 1991 through 2006.
2. Reconcile the number of water-efficient plumbing fixtures that have been installed in the District and the number of inefficient fixtures remaining.
3. Calculate the maximum *technical* water savings remaining in the District.

Staff calculated current savings in the District to be approximately **3,000** acre feet per year, resulting from program activities and building code changes since 1991. The future *maximum technical savings* was determined to be approximately **7,000** acre feet per year in a normal rainfall year. Therefore, according to these calculations, the total normal year conservation potential in the District is approximately **10,000** acre feet per year (current + maximum technical savings). The Report concluded that the District would need to implement a model conservation program over at least the next ten years in order to obtain these savings (Appendix C, 2006 Water Management Report, pages 1-6).

In October 2006, the District engaged the Maddaus Water Management consulting group to analyze the District's conservation potential, using the Least Cost Planning Decision Support System (DSS) Model they developed. This analysis was completed in April 2007 and provides a detailed account of the savings potential of four program alternatives (Programs A – D) through the year 2030, as well as a drought and demand hardening assessment.

The Maddaus Analysis is used as the primary reference source because of the accuracy of the DSS model and expertise of Maddaus Water Management.

Table 1 summarizes the results of both analyses:

TABLE 1
COMPARISON OF MMWD AND MADDAUS CONSERVATION ANALYSES

STUDY	CURRENT DEMAND REDUCTION (ac. ft./year)	POTENTIAL DEMAND REDUCTION (ac. ft./year)	PROGRAM COST PER ACRE FOOT SAVED	AVERAGE % CUSTOMER SATURATION
<i>Maddaus* April 2007</i>	Not Calculated	3,000 – 5,400 Programs A – D by 2030	\$1,000	10 – 50%
<i>MMWD** April 2006</i>	2,800 – 3,400	5,400 – 8,600 Maximum Savings by 2018	\$1,400	90 – 100%

* Appendix A

** Appendix C

The Maddaus program alternatives include savings that will be obtained through the effects of state plumbing codes and new development ordinances. These savings will accrue as property owners replace older, less efficient appliances and in new building developments. Except for some minor costs associated with the administration of District ordinances related to plumbing retrofits and plan review, these savings are virtually 'free' from the utility cost perspective.

Table 2 describes the general elements and savings potential associated with each program option:

TABLE 2
Maddaus Program Descriptions and Future Water Savings*

Program	Description	2030 Water Savings, AF/Yr	2030 Water Savings with Plumbing Code, AF/Yr
Plumbing Code Only	No Conservation Program beyond Plumbing Code	2,000	2,000
A	Continue Current MMWD Program (Mostly BMPs) Market Penetration 6-12%	1,000	3,000
B	Add New Measures to Current Program Market penetration 10-20%	2,000	4,000
C	Add New Measures to Current Program Market penetration 20-30%	3,000	5,000
D	Add New Measures to Current Program Market penetration 30-50%	3,500	5,500

* Adapted from Maddaus Analysis, Appendix A, Table 8, page 35.

Table 3 lists the costs for the Maddaus program alternatives (B – D) in years 2008 – 2030. (Note: These three alternatives were selected for comparison based on staff's budget analysis and final program recommendations.)

TABLE 3
MADDAUS PROGRAM COSTS (2008-2030)

Program	Average Annual District Cost* (\$1,000s)	Average Annual Customer Cost* (\$1,000s)	Average Annual Community Cost (District + Customer)* (\$1,000s)	Average Annual Community Cost Per Service Connection**	Total District Cost*** (\$1,000s)	Total Customer Cost*** (\$1,000s)	Total Community Cost*** (\$1,000s)
B	\$1,117	\$2,300	\$3,679	\$61.00	\$22,244	\$41,136	\$63,380
C	\$1,316	\$2,709	\$4,333	\$71.00	\$29,269	\$48,454	\$77,723
D	\$1,826	\$3,262	\$5,088	\$84.00	\$36,255	\$60,031	\$96,286

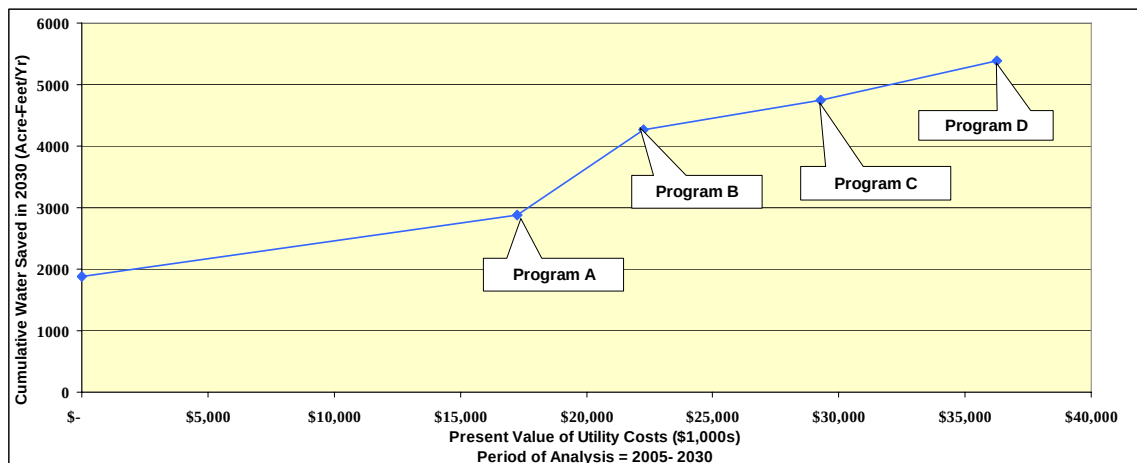
* Adapted from Maddaus Analysis, Appendix A, Attachment 2, page 51; costs are undiscounted.

** Based on 60,670 accounts. Source: CUWCC 2004 BMP Report.

*** Adapted from Maddaus Analysis, Appendix A, Table 8, page 35.

Figure 2 graphs the utility costs versus annual water savings in 2030.

FIGURE 2
Maddaus Present Value of Utility Costs versus Cumulative Water Saved in 2030*



* From Maddaus Analysis, Appendix A, Figure 11, page 36.

Table 4 lists the cost per acre foot and potential water savings during this same time period:

TABLE 4
MADDAUS COST PER ACRE FOOT & WATER SAVINGS POTENTIAL

Program	District Cost per ac. ft.*	Customer Cost per ac. ft.*	Community Cost per ac. ft. (District + Customer)*	Annual Water Savings Potential in 2030 (ac. ft.)*	Total Water Savings as a % of Total Production in 2030**
B, C, D	\$400	\$700	\$1,100	4,300 – 5,400	13% – 17%

* Adapted from Maddaus Analysis, Appendix A, Table 8, page 35. Savings includes plumbing code.

** Adapted from Maddaus Analysis, Appendix A, Table ES-2, page 3. Percentage includes plumbing code.

MMWD Program Recommendations

By using the Maddaus Analysis as a reference model, and adapting Maddaus Programs B, C, and D to the organizational framework of the District, staff has prepared customized program alternatives for MMWD. The MMWD alternatives are roughly equivalent to Maddaus programs in terms of overall costs and savings targets, and Tables 1 – 4 can be used for purposes of direct comparison.

The MMWD Programs include an Automated Meter Reading (AMR)/Advanced Meter Infrastructure (AMI) and Leak Detection Program that will be operated by the Facilities and Watershed Division, and Conservation Programs 1 – 3 to be operated by the Water Conservation Department. **Table 5** summarizes the costs and savings targets associated with each MMWD program alternative and provides a description of program activities that would be accomplished during the next two-year budget cycle:

TABLE 5
MMWD CONSERVATION PROGRAM ALTERNATIVES

Program	AMR/AMI & Leak Detection	Conservation Program #1 (compare to Maddaus Program B)	Conservation Program #2 (compare to Maddaus Program C)	Conservation Program #3 (compare to Maddaus Program D)
Description	The District has not had an individual dedicated solely to leak detection in more than five years. Staff recommends that two positions be dedicated to leak detection. These positions would be classified as Utility Workers III, reporting to the Area Field Supervisor in the Facilities and Watershed Division. Based on past experience, it requires five years for one worker to survey all nine hundred miles of pipeline and sixty thousand meters in the District. With two Staff dedicated to leak detection, the task should be accomplished in three years. Automated Meter Reading (AMR) and Advanced Meter Infrastructure (AMI) technologies would replace existing meters and provide numerous technological opportunities for revenue recovery and conservation.	MMWD Program #1 is the “status quo” option – with program expenditures in FY '08/'09 similar to FY '07 levels. Program costs will change in response to inflation, staff salaries and benefits, and program implementation for all programs through 2030. New rebate programs initiated in FY '07 will be funded at partial levels, and customer saturation targets would remain at current levels. The Customer Assistance Program (CAP), water waste, and Time of Service programs will continue at minimum levels; and a new school education program will be initiated (Appendix B, Staff Reports). Some website and database tools will be developed.	Program #2 includes increases in spending for rebates, staffing, and customer services beyond FY '07 levels. New rebate programs initiated in 2007 will be funded at higher levels, and CAP services will increase significantly for all customer types. Three new Conservation Specialist I positions would be added to perform field surveys and provide program support. One existing Conservation Specialist III position would be upgraded to an existing Conservation Coordinator position, and the Mid-Manager position will be upgraded to a Senior Manager position. A new School Education Program will be initiated and funded at increased levels. Improvements to public outreach and marketing, conservation databases, website development, contractor education, and regional development projects will also be accelerated.	Five new Conservation Specialist I positions will be added to perform field surveys and provide program support. One new Conservation Specialist II will be added to support School Education Programs. One existing Conservation Specialist III position will be upgraded to an existing Conservation Coordinator position, and the Mid-Manager position will be upgraded to a Senior Manager. Rebate programs will be funded at higher levels, and very significant improvements in the CAP programs will occur for all customer types. The new School Education Program will be funded at above average levels. Significant improvements will be made in public outreach and marketing, conservation database and website development, contractor education, research, and regional development projects.
FY '08/'09 District Costs (per year)	AMR/AMI – \$1,700,000 Leak Detection – \$272,000	\$1,800,000	\$2,700,000	\$3,300,000
Staff Requirements	AMR/AMI – to be determined Leak Detection – Add 2 positions	No new positions	Add 3 and upgrade 2 positions	Add 6 and upgrade 2 positions
2015 Demand Reduction (ac.ft./year)	AMR/AMI – to be determined Leak Detection – 400*	2,400**	2,800**	3,400**
2030 Demand Reduction (ac.ft./year)	AMR/AMI – to be determined Leak Detection – 800*	3,500**	3,900**	4,600**

* Adapted from Maddaus Analysis, Appendix A, Table 4, page 20. Savings are calculated as a “30-year Average”.

** Adapted from Maddaus Analysis, Appendix A, Table 8, page 35. Savings includes plumbing code minus Leak Detection Program savings.

Program Implementation

Strategy

In order to cost-effectively operate MMWD's conservation programs, staff will work collaboratively with private and public partners to the greatest extent possible. This strategy is designed to produce the following results:

- Administrative costs can be reduced or deferred to other service providers.
- Program participation will increase via networking among partners.
- Communication and marketing messages will be more effective as they reach more customers more often.
- Rebate and incentive costs can be reduced more quickly if market transformation occurs at a faster pace—water-saving devices become more available and affordable.
- Public events will cost less to produce and will reach more customers.
- Water savings resulting from behavioral changes will increase with growing public awareness.
- Public support for rate increases may increase if more customers realize direct benefits from District programs.
- Funding opportunities for research and new technologies will increase with greater program visibility and wider regional benefits.

Communications and Marketing

MMWD's audience includes all of its 190,000 customers. Reminding them of the need to be mindful about water—use well, not waste—is an ongoing and overarching goal of the District's communications plan. MMWD has identified audiences where it expects to have the greatest impact on water use:

1. Residential customers

- Homeowners with irrigation systems
- Homeowners' Associations
- Professional landscapers, plant nurseries, garden supply centers
- Civic, health, environmental, and conservation organizations
- Highest water users

2. Commercial customers

- City and county public works departments
- Schools (maintenance supervisors)
- Hospitals
- Private businesses
- Golf courses
- Owners of multi-family residential housing

3. Teachers, school-age children, and their families

District Policy

Funding

To provide long-term funding for conservation programs and revenue for District operations, the following funding mechanisms are proposed:

- Regular tier-break adjustments
- Service and/or connection fees dedicated to conservation programs
- On-bill conservation surcharges based on current consumption
- Bond financing secured with conservation surcharges
- On-bill financing (e.g., “Pay-As-You-Save”)

Ordinances

Revising the existing conservation ordinances, and adding new development ordinances, should be a high priority for the District over the next year. Although overall savings resulting from ordinances will be relatively small, they are highly cost effective. Opportunities exist to increase the effectiveness of ordinances by building enforcement networks with local municipalities and other special districts.

Conclusions

The District is at a critical turning point in its history and must make significant investments that balance water supply and demand, and fund infrastructure maintenance and operations.

Investments in water conservation programs have reliably reduced water demand in the District for over 30 years and continue to yield consistent results. The conditions now exist for the District to launch an aggressive, sustained conservation campaign and set a new achievement standard for water efficiency in California: Water supplies are limited, new supplies are expensive to develop and impact the environment, the citizens of Marin are knowledgeable and motivated, the District has the in-house expertise to develop and operate programs successfully, and the technologies exist that can reliably reduce consumption in the future.

Although conservation is a cost-effective method that extends available water supplies and provides environmental benefits, under the current District pricing structure, lowered water sales also reduce District revenue. Solving this financial catch-22 is the most critical challenge limiting conservation today.

Finally, it is a political decision that will determine the level of conservation savings the District attains. Only by making a commitment to work together as an agency and a community, to overcome financial and social barriers, and to invest in public education and technology, can the conservation potential in Marin be achieved.

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MMWD CONSERVATION PROGRAMS

STATEWIDE CONTEXT

California communities are under increasing pressure to meet future water demands. Increasing population, environmental conditions, rising capital and operational costs, recreational needs, agricultural demands, and changing weather patterns are all contributing factors. Statewide, modern conservation programs began in 1991 when MMWD and most other water agencies signed the first *Memorandum of Understanding Regarding Water Conservation in California*. This historic event transformed conservation programs among individual agencies into a statewide coalition dedicated to sustained water use efficiency practices. The *Memorandum* describes 14 Best Management Practices (BMPs) that include everything from toilets to irrigation systems and rate structures. An agency is considered “on track” for a given BMP if it is meeting the implementation schedule. For example, MMWD has completed the implementation of BMP #14, the “Residential Ultra-low Flow Toilet BMP”, because an estimated 48,000 ULFTs have been installed in the District since 1994.

For an agency to be ‘on-track’ with the BMPs is comparable to constructing a building to meet minimum building codes. BMPs were born out of statewide political compromise, and as such, represent a fairly low standard of achievement. Nevertheless, it is a good standard and serves as a starting point for future conservation efforts. If all the BMPs were fully implemented by all water agencies, plus savings from building codes, demand in California would be reduced by approximately 1 million acre feet each year by 2030. This represents approximately 33% of the maximum savings technically available through improved water efficiency practices.

Currently, however, no water agencies have fully implemented the BMPs. As a result, actual water savings equal only one-third of the BMP goal. Lack of resources dedicated to conservation programs is the primary reason for not achieving anticipated savings.

Figure 3 below is extracted from a presentation of the CUWCC *CALFED Year 4 Comprehensive Report*, and it shows the relative levels of water agency BMP compliance as of 2002.

FIGURE 3
Statewide BMP Compliance

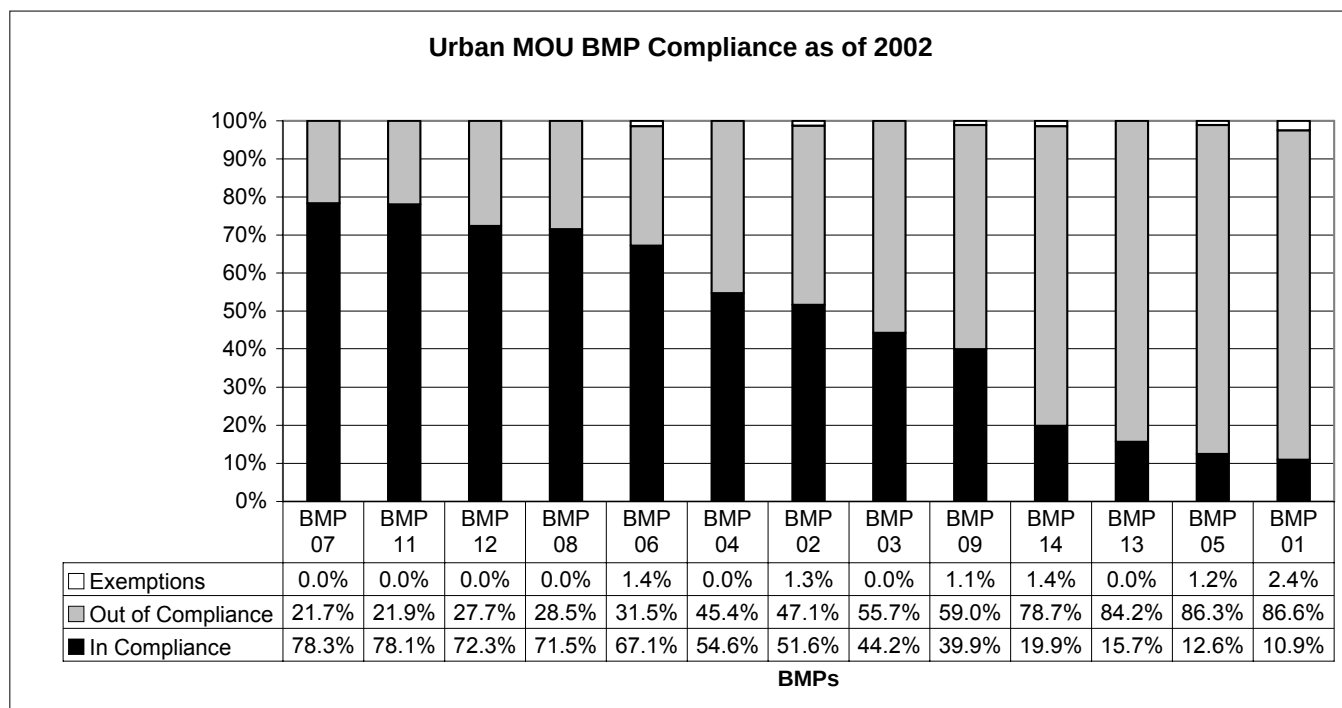


Table 6 on the following page compares BMP program statistics of seven California water agencies, including MMWD.

TABLE 6
Comparison of BMP Program Implementation *

Water Agency (%) indicates customer saturation	Alameda County Water District	Redwood City	East Bay Municipal Utility District	Irvine Ranch Water District	Long Beach Water Department	San Francisco PUC	Marin Municipal Water District
BMP 1 Residential Surveys	8,014 (11.3%)	368 (1.8%)	67,056 (19.2%)	3,052 (4.0%)	32,697 (40.8%)	89,379 (60.6%)	4,653 (8.4%)
BMP 3 Leak Detection	System audit in 2004	No program reported	2 – Staff 1 – Vehicle	No audit reported	System audit in 2000	Program to begin in 2005	System audit in 2001
BMP 5 Landscape Surveys	842 (16.0%)	22 (1.1%)	2,025 (7.2%)	0 reported	364 (4.0%)	3,165 (14.0%)	97 (9.5%)
BMP 6 2006 Data Clothes Washers	13,324 (18.8%)	1,080 (5.4%)	30,368 (8.7%)	8,435 (9.9%)	6,703 (8.4%)	7,811 (5.3%)	6619 (11.9%)
BMP 9 CII Audits	370 (10.6%)	0 reported	3,393 (14.8%)	50 (1.0%)	2,336 (28.5%)	12,885 (60%)	253 (7.1%)
BMP 14 ULF Toilets	0 reported	0 reported	24,443	26,707	43,419	37,034	48,857
Total Accounts	77,907	22,931	377,318	85,728	89,381	170,670	60,670
Dollars Spent on BMP Programs*	\$683,444	\$660,486	\$4,848,518 (‘03/’04 avg.)	\$633,752	\$1,489,364	\$1,016,952	\$973,312 (source:MMWD)
Dollars Spent per Person	\$2.11	\$7.96	\$7.96	\$2.06	\$3.04	\$1.28	\$5.23
Dollars Spent per Ac. Ft. Delivered	\$12.11	\$48.36	\$18.54	\$7.05	\$17.93	\$9.98	\$29.97
Population*	323,250	83,000	1,325,000	308,400	490,000	792,700	186,000
Water Deliveries (Ac. Ft.)*	56,427	13,659	261,560	89,916	83,086	101,870	32,478
Ac. Ft. Saved per Year		563 ac.ft @ \$1,173/ac. ft. in 2005 ¹	18,412 ac.ft./year @ \$263/ac. ft. ²				3,000 ac. ft./year @ \$324/ac. ft. ³

* Source: http://bmp.cuwcc.org/bmp/read_only/list.lasso. Important Note: All data is from CUWCC 2004 BMP reports, except where indicated.

1. Source: 2005 UWMP, Table 6.2, City of Redwood City.

2. Source: EBMUD 2004 Water Conservation & Water Recycling Annual Report page E-2.

3. Source: MMWD 2006 Water Management Report, Appendix C, page 6.

FUTURE MMWD PROGRAM GOALS AND OBJECTIVES**Goals:**

1. Produce reliable water savings at the lowest cost
2. Protect the natural environment
3. Foster positive customer experiences
4. Enhance the health of urban forests
5. Cultivate the conservation ethic in Marin

Objectives:

- Promote behavioral conservation actions to the greatest extent possible through sustained public outreach programs
- Develop programs with manufacturers and retailers that leverage bulk discounts on plumbing fixtures
- Enact new development ordinances in coordination with all municipal agencies and special districts
- Enlist local community organizations as program partners to increase the effectiveness and number of customer contacts
- Provide service-oriented programs that enhance customers' lifestyles and property values
- Offer financial incentives that promote market transformation
- Increase public education activities
- Develop technologies that lower program transaction costs and barriers to customer participation
- Participate in regional partnerships related to funding, marketing, and customer education
- Promote programs that protect environmental resources

FUTURE MMWD PROGRAM DESCRIPTIONS

Each of the program options listed below is based on a combination of information from the Maddaus Analysis, MMWD's budget projections, and staff's professional judgment. In general, the programs are designed to maximize staff resources by leveraging community resources and to minimize costs through volume purchases and technology.

- ***Automated Meter Reading (AMR) & Advanced Meter Infrastructure (AMI)***
- ***Leak Detection Program***
- ***Conservation Program #1***
- ***Conservation Program #2***
- ***Conservation Program #3***

Automated Meter Reading (AMR) & Advanced Meter Infrastructure (AMI)

- **Total FY '08/'09 Utility Costs:** **\$1,700,000 per year**
- **Average Annual Cost (10 years):** **\$1,700,000 per year***
- **Total 10-year cost:** **\$14 – 18 million**
(including replacement of 60,000 meters)
- **Staff Requirements:** **To be determined**
- **Demand Reduction potential 2015:** **To be determined**
- **Demand Reduction potential 2035:** **To be determined**

* Based on an estimated total project cost of \$15 million at a nominal annual interest rate of 4.160%

Background

District staff has conducted research on various new meter reading technologies over the past several years. Many unanswered questions remain regarding potential costs for additional staff resources, demand reduction potential, and changes in revenue that may result from more accurate meter readings. In order to answer these questions, MMWD has engaged an industry consultant that is currently conducting a detailed assessment that will be completed by August 2007. Once this assessment is completed staff will have the information needed to make a more informed recommendation on how the District should proceed and what the costs associated with such a program would be.

While new technologies continue to be developed at a rapid pace, AMR and AMI systems are becoming increasingly cost-effective tools offering a variety of benefits. Automated Meter Reading (AMR) refers to the ability to collect data from a meter remotely and automatically via various different methods, RF (radio frequency) wireless, power line, and telephone lines. Advanced Meter Infrastructure (AMI) is the next, newest step in meter technology. AMI represents an infrastructure that utilizes smart meters with advanced two-way communications that enable utilities to meet their business needs for meter data collection. Utilities with AMI systems have the ability to collect data on an hour-by-hour basis, if needed. And, it enables consumers to actively and frequently collect their own consumption data.

The District has approximately 60,000 meters in the system. Of these, approximately 55,000 are residential meters; 2,000 are irrigation meters; and the remainder serves businesses and/or office complexes. The District's current Meter Change Program (MCP) is based on a 20-year meter life. Meters are warranted by the manufacturer for 15 years or 1.5 million gallons of water/2,000 ccfs. Within the next six years, 32,000 of the District's meters are scheduled for replacement, representing more than 50% of the District's meters.

The cost of the basic meter currently being installed by the District is approximately \$48.00, while the cost of an AMR/AMI meter is approximately \$180.00, not including the cost of installation.

Potential Benefits

AMR/AMI meters can provide the District and its customers with a wide range of benefits that are unavailable with manually read meters. Some of these benefits are summarized below:

Meter Operations

- Reduces stuck meter maintenance calls
- Decreases vehicle traffic
- Decreases vehicle carbon gas emissions
- Decreases vehicle maintenance and fuel costs

Customer Service/Finance

- Improves service by providing in-home water usage monitoring by consumers
- Facilitates monthly billing
- Decreases re-reads/mis-read trips
- Decreases move-in/move-out trips
- Decreases vehicle traffic on the road
- Decreases vehicle carbon gas emissions
- Decreases vehicle maintenance and fuel costs

Engineering

- Decreases unaccounted for water loss

Water Conservation

- Provides leak detection, data logging, and usage monitoring
- Allows time-of-day use monitoring and reporting
- Facilitates accurate water savings calculations

Safety

- Reduces Workmen's Compensation liability claims

Leak Detection Program

- **Total FY '08/'09 Utility Costs*:** **\$230,000 per year**
- **Average Annual Cost (30 years):** **\$190,000**
- **Staff Requirements:** **Add 2 positions**
- **Leak Reduction Potential
(30-year average, ac. ft./year)**:**
 - 1.5% = 400 acre feet**
 - 2.0% = 500 acre feet**
 - 3.0% = 800 acre feet**

* Note: The leak detection program is included in each of Maddaus Programs B, C, and D—see Appendix A on page 44 of the Maddaus Analysis for details on leak detection program costs. However, since the leak detection program will be operated separately from the MMWD Conservation Programs, staff has calculated the costs for this program separately.

** Adapted from Maddaus Analysis, Table 4, page 20.

Background

The District measures annual “unaccounted for water losses” due to leaks and other unknown sources. There has been a marked improvement in loss control since the 1970s, when the average system losses were around 14%. Today, due to pipeline replacements and leak repairs, the average system loss is 10%. This 4% reduction in losses equates to a savings of about 1,200 acre-feet of water each year.

The District has not had an individual dedicated solely to leak detection in more than five years. Leak detection/survey is now handled by the Valve Technicians on an incident by incident basis. The Valve Technicians are first responders to all mainline leaks, mainline shut downs for the crews and contractors, consumer calls, and meter turn-on/off. Under this scenario, it is difficult to dedicate the required blocks of time to complete leak survey work in a systematic manner.

The process of leak detection involves pinpointing a specific leak location. This process assists staff in completing repairs with a minimal amount of excavation. Leak surveying is accomplished by canvassing the entire water distribution system. Using sonic leak detection equipment, technicians are able to locate leaks that may be hidden from view, because they are not yet surfacing. The leaks typically found during a survey include District leaks—mainline and service line—and consumer leaks.

Benefits

Detecting and repairing leaks in the District's delivery system and on a customer's property is a highly cost-effective way to conserve water that the District has already purchased, treated, and delivered.

For example: Every 1% decrease in system water loss equals a savings of about 300 acre-feet per year. At Tier I prices, the retail value of this water is over \$300,000 every year. By factoring in the additional benefits derived from avoided costs for potential property damages, and treating and pumping this water, the value of leak detection increases. Leak detection programs can provide other substantial benefits, including:

- Safeguarding public health and property. Discovery of leaks before they turn into larger main breaks and reduce the likelihood of property damage and public safety.
- Improved public relations. Consumers appreciate maintenance of the water system and help with consumer problems. Field personnel doing leak detection provide visual assurance that the system is being maintained.
- Reduced legal liability. By early detection, we are able to repair leaks before they become large main breaks. This helps protect the District from expensive lawsuits.
- Reduced disruption to consumers. More leaks are repaired on a planned basis rather than developing into major breaks that disrupt service.

Recommendations

Staff recommends that two positions be dedicated to leak detection. These positions would be filled by in-house candidates, and classified as Utility Workers III; based on the job skills and experience the position requires. They would report to the Area Field Supervisor in the Facilities and Watershed Division.

Based on past experience, it requires five years for one worker to survey all nine hundred miles of pipeline and sixty thousand meters in the District. With two staff dedicated to leak detection, the task should be accomplished in three years. New technology is available for leak detection, including data loggers that are placed at various locations within the District's system, such as service laterals, system mainline valves and hydrants. These data loggers are programmed to turn on automatically at different intervals during the night and 'listen' for leaks. This information is downloaded to a computer and then used to pinpoint leaks. This is a great tool and will be used to conduct a thorough and comprehensive leak survey, especially at program start up.

Based on the fact that it has been over five years since the last leak survey, staff is recommending the following approach be taken to initiate this program:

- Survey the District's distribution system by walking the entire service area, listening on all service laterals and other points of contact. This will enable the surveyor to find the smaller meter leaks, service leaks, and also consumer leaks that would not be picked up by the data loggers.
- A large portion of the work would be done at night. Typically, the best hours for leak detection are between 10 pm and 5 am. These are the hours of the least amount of water consumption and there is not the noise from traffic that you would find during daylight hours.

First-Year Startup Costs

(2) Utility Worker III	\$140,000 (@ step 5)
Benefits	50,000
(2) Trucks	60,000
Sonic Leak Detectors & Pipe Locators	<u>10,000</u>
Total First-Year Costs	\$260,000

Staff will reevaluate the leak detection program after approximately three years, following the initial survey of the entire water distribution system. Recommendations about future staffing and funding levels will be provided to the District based on the volume of survey activity.

Costs for mainline, service, and meter leaks would be borne by the respective cost centers already in place. Although additional staff and equipment for leak repairs may be needed, depending on the volume of leaks discovered, staff does not anticipate this occurring at this time.

The Leak Detection Program could start as soon as the positions are advertised by Human Resources and filled.

Conservation Program #1
(compare to Maddaus Program B)

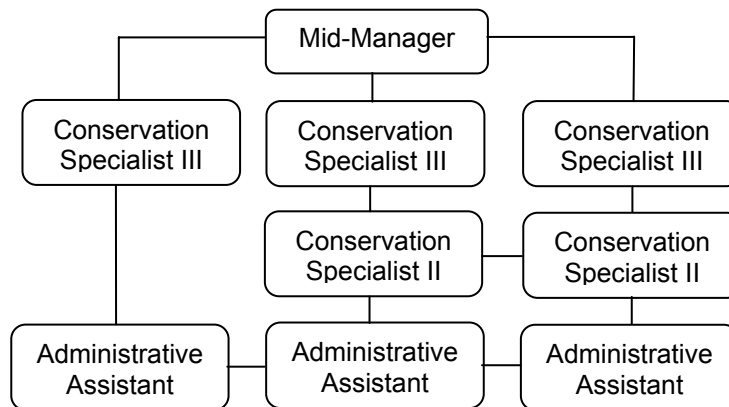
- **Total FY '08/'09 Utility Costs:** **\$1.8 million per year***
- **Total Utility Costs FY 2008 – 2022:** **\$25,000,000****
- **Staff Requirements:** **No change**
- **Market Penetration:** **10 – 20%**
- **Demand Reduction with plumbing code 2015:** **2,400 acre feet per year*****
- **Demand Reduction with plumbing code 2030:** **3,900 acre feet per year*****

* MMWD calculated the "Total FY '08/'09 Utility Costs" based on staff's budget analysis using actual full-time equivalent costs and program expenditures.

** "Total Utility Costs FY 2008 – 2022" are based on the Maddaus Program B cost projections listed on page 51 of Appendix A and have been adjusted by MMWD to include a 3% inflation rate.

*** Demand Reductions are derived by subtracting leak detection program savings of 1.5% from the Conservation Program B + plumbing code savings listed in Table 8 on page 35 of the Maddaus Analysis.

FIGURE 4
Program #1 Organizational Chart



The MMWD conservation programs are currently operated using an interactive team approach. **Figure 4** illustrates this interactivity, using multiple lines that connect staff positions. These lines indicate that a staff member coordinates job tasks with multiple teams. MMWD Program #1 is the "status quo" option—with program expenditures in FY '08/'09 similar to FY '07 levels. Program costs will change in response to inflation, staff salaries and benefits, and program implementation for all programs through 2030. New rebate programs initiated in FY '07 will be funded at partial levels, and customer saturation targets would remain at current levels. The Customer Assistance Program (CAP), water waste, and Time of Service programs will continue at minimum levels; and a new school education program will be initiated (Appendix B, Staff Reports). Some website and database tools will be developed.

Table 7 compares **MMWD Conservation Program #1** budgeted activities in FY'08/'09 with the number of activities listed in the Maddaus Program B analysis:

TABLE 7
Program #1 Budgeted Activities FY '08/'09

Activity Description	MMWD Budgeted Activities per year in FY '08/'09	Maddaus Program B Activities per year	Maddaus Water Use Reduction Target	Maddaus Market Penetration Goal
Indoor Residential Survey BMP 1	440	588	5%	30%
Outdoor Residential Survey BMP 1	440	588	10%	30%
Landscape Budgets BMP 5	300	116	15%	90%
Landscape Survey BMP 5	20	7	10%	1.8%
Clothes Washers BMP 6	1,200	1,200	34%	26%
Public Education BMP 7	51,000	51,000	1%	100%
Commercial Audits BMP 9	12	49	12%	12%
ULFT Ordinance BMP 14	2,000	575	Equals service change rate	60%
Rain Sensor Retrofit	1,500	3,259	30%	9%
San Quentin Toilets	300	200	NA	54%
HET Rebates	1,000	1,085	20%	57%
Homeowner Classes	54	272	5%	5%
Coin-Op Washers	71	22	15%	34%
Irrigation Incentives	275	212	5% Residential 15% Commercial	15%
Hotel Retrofit	50	48	40%	20%
Commercial Rebate	150	24	10%	10%
HE Urinal Rebate	100	24	10%	71%
New Development Ordinance	Yes	Yes	NA	100%

Conservation Program #2

(compare to Maddaus Program C)

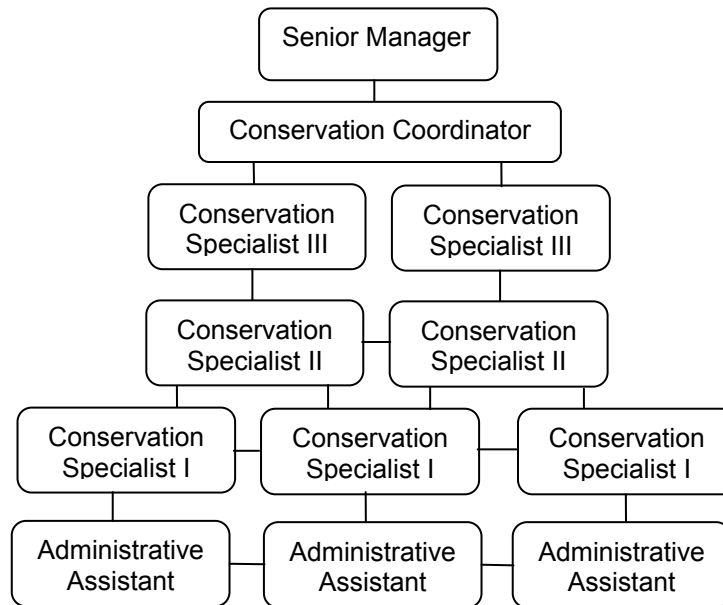
- **Total FY '08/'09 Utility Costs:** **\$2.7 million per year***
- **Total Utility Costs FY 2008 – 2022:** **\$36,000,000****
- **Staff Requirements:** **Add 3 positions/Upgrade 2**
- **Market Penetration:** **20 – 30%**
- **Demand Reduction with plumbing code 2015:** **2,700 acre feet per year*****
- **Demand Reduction with plumbing code 2030:** **4,200 acre feet per year*****

* MMWD calculated the "Total FY '08/'09 Utility Costs" based on staff's budget analysis using actual full-time equivalent costs and program expenditures.

** "Total Utility Costs FY 2008 – 2022" for program C are based on 81% of the Maddaus Program D cost projections listed on page 51 of Appendix A and have been adjusted by MMWD to include a 3% inflation rate.

*** Demand Reductions are derived by subtracting leak detection program savings of 2.0% from the Conservation Program C + plumbing code savings listed in Table 8 on page 35 of the Maddaus Analysis.

FIGURE 5
Program #2 Organizational Chart



Program #2 includes increases in spending for rebates, staffing, and customer services beyond FY '07 levels. New rebate programs initiated in 2007 will be funded at higher levels, and CAP services will increase significantly for all customer types. Three new Conservation Specialist I positions would be added to perform field surveys and provide program support. One existing Conservation Specialist III position would be upgraded to an existing Conservation Coordinator position, and the Mid-Manager position will be upgraded to a Senior Manager position. A new School Education Program will be initiated and funded at increased levels. Improvements to public outreach and marketing, conservation databases, website development, contractor education, and regional development projects will also be accelerated.

Table 8 compares **MMWD Conservation Program #2** budgeted activities in FY '08/'09 with the number of activities listed in the Maddaus Program C analysis:

TABLE 8
Program #2 Budgeted Activities FY '08/'09

Activity Description	MMWD Budgeted Activities per year in FY '08/'09	Maddaus Program C Activities per year	Maddaus Water Use Reduction Target	Maddaus Market Penetration Goal
Indoor Residential Survey BMP 1	575	588	5%	30%
Outdoor Residential Survey BMP 1	575	588	10%	30%
Landscape Budgets BMP 5	360	116	15%	90%
Landscape Survey BMP 5	60	7	10%	1.8%
Clothes Washers BMP 6	1,440	1,200	34%	26%
Public Education BMP 7	100,000	51,000	1%	100%
Commercial Audits BMP 9	40	83	26%	12%
ULFT Ordinance BMP 14	2,000	575	Equals service change rate	60%
Rain Sensor Retrofit	4,483	6,085	30%	9%
San Quentin Toilets	300	200	NA	54%
HET Rebates	1,800	1,671	30%	57%
Homeowner Classes	297	542	5%	10%
Coin-Op Washers	150	37	25%	34%
Irrigation Incentives	750	518	10% Residential 25% Commercial	15%
Hotel Retrofit	137 Rooms	72 Rooms	60%	20%
Commercial Rebate	150	24	10%	10%
HE Urinal Rebate	250	50	20%	71%
New Development Ordinance	Yes	Yes	NA	100%

Conservation Program #3

(compare to Maddaus Program D)

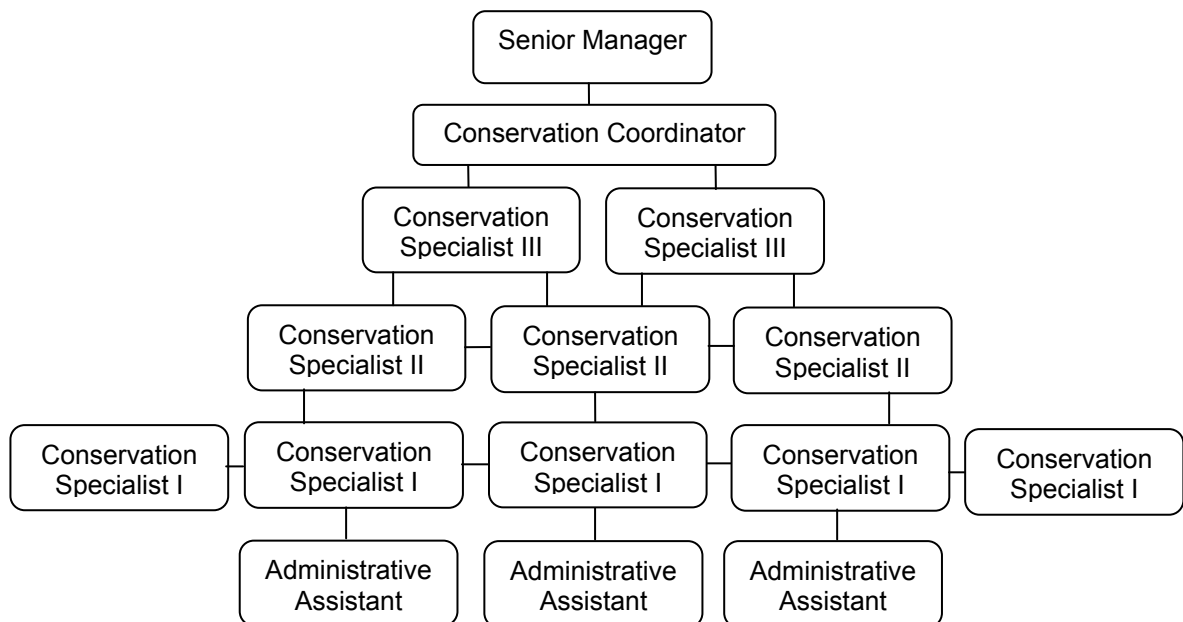
- **Total FY '08/'09 Utility Costs:** **\$3.3 million per year***
- **Total Utility Costs FY 2008 – 2022:** **\$44,000,000****
- **Staff Requirements:** **Add 6 positions/Upgrade 2**
- **Market Penetration:** **30 – 50%**
- **Demand Reduction with plumbing code 2015:** **3,000 acre feet per year*****
- **Demand Reduction with plumbing code 2030:** **4,600 acre feet per year*****

* MMWD calculated the "Total FY '08/'09 Utility Costs" based on staff's budget analysis using actual full-time equivalent costs and program expenditures.

** "Total Utility Costs FY 2008 – 2022" are based on the Maddaus Program D cost projections listed on page 51 of Appendix A and have been adjusted by MMWD to include a 3% inflation rate.

*** Demand Reductions are derived by subtracting leak detection program savings of 3.0% from the Conservation Program D + plumbing code savings listed in Table 8 on page 35 of the Maddaus Analysis.

FIGURE 6
Program #3 Organizational Chart



Program #3 increases program expenditures for staffing and customer services beyond Program #2 levels. Five new Conservation Specialist I positions will be added to perform field surveys and provide program support. One new Conservation Specialist II will be added to support School Education Programs. One existing Conservation Specialist III position will be upgraded to an existing Conservation Coordinator position, and the Mid-Manager position will be upgraded to a Senior Manager. New rebate programs initiated in 2007 will be funded at higher levels, and very significant improvements in the CAP programs will occur for all customer types. A new School Education Program will be initiated and funded at above average levels. Significant improvements will be made in public outreach and marketing, conservation database and website development, contractor education, research, and regional development projects.

Table 9 compares **MMWD Conservation Program #3** budgeted activities in FY '08/'09 with the number of activities listed in the Maddaus Program D analysis:

TABLE 9
Program #3 Budgeted Activities FY '08/'09

Activity Description	MMWD Budgeted Activities per year in FY '08/'09	Maddaus Program D Activities per year	Maddaus Water Use Reduction Target	Maddaus Market Penetration Goal
Indoor Residential Survey BMP 1	1200	588	5%	30%
Outdoor Residential Survey BMP 1	1200	588	10%	30%
Landscape Budgets BMP 5	750	116	15%	90%
Landscape Survey BMP 5	120	7	10%	1.8%
Clothes Washers BMP 6	1,750	2,700	34%	26%
Public Education BMP 7	120,000	51,000	1%	100%
Commercial Audits BMP 9	165	123	26%	12%
ULFT Ordinance BMP 14	2,500	575	Equals service change rate	60%
Rain Sensor Retrofit	4,900	6,085	30%	9%
San Quentin Toilets	400	200	NA	54%
HET Rebates	1,980	1,671	30%	57%
Homeowner Classes	325	542	5%	10%
Coin-Op Washers	150	37	25%	34%
Irrigation Incentives	1,000	1,036	10% Residential 25% Commercial	15%
Hotel Retrofit	150 Rooms	72 Rooms	60%	20%
Commercial Rebate	165	24	10%	10%
HE Urinal Rebate	275	50	20%	71%
New Development Ordinance	Yes	Yes	NA	100%

CURRENT MMWD PROGRAM STATUS

Since 1991, MMWD has completed, or is on track to complete, 11 out of 14 BMPs. This is a very good track record compared to many other water agencies in California. The District has excelled in programs to install ULFTs, residential showerheads and high-efficiency clothes washers; promote public information; and implement conservation pricing. Areas needing improvement include customer site surveys, landscape equipment retrofits, and school education programs. A complete history of the District's conservation achievements is included in Appendix C, the *2006 Water Management Report*.

Four new conservation programs have been approved and implemented in 2006 – 2007: the Conservation Action Committee; High-Efficiency Toilet Rebate Program; Landscape Equipment Rebate; and Conservation Outreach and Marketing Programs. A new School Education Program proposal (Appendix B) has also been prepared for Board review.

In order to track and report on the progress of conservation programs at the District, new database tools are currently under development. These tools will be integrated with the existing SAP system, Access databases, and GIS programs. When completed, the District will have the ability to track conservation activities for each service address and report on changes in water consumption before and after activity. Additionally, landscape area measurements and the water budget process will be automated and allow significant increases in staff productivity.

Collaborations are under way with the following community partners:**School Education Programs**

- Next Generation
- California Regional Environmental Education Community (CREEC) Network
- Environmental Education Council of Marin
- The Bay Institute
- School Environment Education Docents (SEED)
- PlayFair

Landscape Programs

- Marin Master Gardeners
- Bay-Friendly Landscaping and Gardening
- Irrigation manufacturers and retailers
- California Landscape Contractors Association
- U.C. Cooperative Extension

Commercial and Residential Programs

- Bay Area Public Agencies
- Intergy
- Electric & Gas Industries Association (EGIA)
- California Youth Energy Services

PROGRAM ACTIVITY LEVELS

Customers are responding positively to MMWD's customer-friendly conservation strategy. For example, the new high-efficiency toilet rebate program (started in January 2007) has issued more than 300 toilet rebates over the first 3-month period, and interest in this program continues to grow. To put this number of rebates into perspective, other larger water agencies in the Bay Area completed only 150 – 300 HET rebates in all of 2006, while Redwood City installed 4,800 residential toilets between 2005 and 2006 with their direct-installation program.

MMWD's high-efficiency clothes washer program also continues to rebate an average of 1,200 washers each year, after 12 years in operation and more than 9,000 rebates. Staff calculates that as many as 40,000 washers are eligible for rebates in the next 10 years (Appendix C, 2006 Water Management Report, page 14).

This positive response to District programs can be attributed to several demographic characteristics—which are indicators that conservation programs can maintain high activity levels in Marin:

- Residential accounts represent more than 90% of the customer base.
- Residential remodeling projects are very common in Marin and provide opportunities to upgrade plumbing fixtures.
- The average construction age of houses is 1968, prior to enactment of the National Energy Policy Act in 1992 that mandated water efficient plumbing fixtures, indicating a larger than average pool of older, less efficient fixtures.
- Marin is an affluent and highly educated community, with fewer economic barriers and a strong history of participation in conservation activities.
- Public opinion surveys and comments indicate that a majority of residents see conservation as the preferred water supply option.
- Conservation is a cost-effective method to extend limited water supplies and provide a host of environmental benefits to the community.

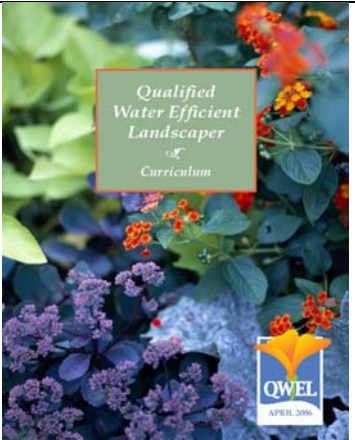
COMMUNITY INPUT

Marin residents are extraordinarily interested in environmental issues, including water conservation. District customers have contributed many outstanding ideas intended to improve the environment through natural resource conservation. In 2006 – 2007, Staff conducted two Conservation Action Committee meetings and a “HydroForce Workshop” at College of Marin, and also published a notice about the Master Plan in the March/April edition of *On the Water Front* to solicit input on the future of conservation programs in the District. Staff has recorded the following ideas voiced at Board meetings, public events, during informal conversations, and from e-mails and letters:

• Expedite installation of water-saving devices for large municipal water users by providing direct-installation programs that remove financial and institutional barriers. • Encourage the use of rain water catchments, grey water, and wells to offset irrigation requirements. • Increase public awareness through highly visible logos, messages, and product branding. • Institute a District conservation fee on each water bill that would be removed during any billing cycle that the customer stayed within a set water budget. • Improve the District’s phone system and website so it is easier to contact Staff, participate in incentive programs, and get information. • Create demonstration projects (gardens, art, retrofit public facilities) to increase awareness. • Proactively contact customers who are over their water budget to offer program assistance. • Encourage the use of sub-meters to help customers self-monitor their water use throughout the month. • Work with manufacturers to provide local “time of purchase” rebates to simplify and enhance incentive programs. • To highlight the relationship between water and power, a special brochure— “101 Ways to Save Water and Power”— was created.	• Coordinate with relevant programs and ordinances in the County, Cities, wastewater districts, and other water agencies. • Expand recycling and storm water capture systems throughout the District. • Increase education programs and internships for students. • Work with retailers and manufacturers to add labels to plants and irrigation equipment to help consumers identify water-conserving products. • Implement on-bill financing opportunities like the “Pay-As-You -Save” program. • Conduct pilot studies on a community or neighborhood scale. • Study the potential to reduce evaporation from surface reservoirs. • Require auto dealerships and rental agencies to use recycling car washes. • Study the potential for composting toilets. • Sponsor friendly community competitions offering prizes and recognition to the most efficient participants.

The following section titled the 'Conservation Scrapbook' is provided in order to illustrate many of the activities currently underway or completed in the past year by the conservation department:

CONSERVATION SCRAPBOOK – 2006/2007

Analysis	Commissioned the Conservation Technical Analysis by Maddaus Water Management (Appendix A). A detailed technical analysis of the conservation savings potential through 2030. District staff completed the MMWD 2006 Water Management Report (Appendix C) in April 2006. This history of conservation program accomplishments from the 1970s through April 2006 provides a detailed account of the water savings achieved in the past and calculates the maximum technical savings in the future.  <u>MADDAUS WATER MANAGEMENT</u> 
Education	 MMWD hosted 30 public events and workshops. Contractors were trained in new irrigation technologies. Staff partnered with a variety of groups including the Girl Scouts, Marin Environmental Forum, Marin Art & Garden Center, County of Marin, College of Marin, Sustainable Marin, and many others, who joined together to build a strong social awareness around water conservation. Qualified Water Efficient Landscape Training Program – MMWD partnered with the Sonoma County Water Agencies, College of Marin, the California Landscape Contractors Association and numerous landscape professionals to develop a comprehensive certification program. Over a period of weeks, the program trains landscape workers in the principles of water conservation, integrated pest management, and irrigation systems. 

Education	The Northern California Water Management & Technology Education Center N o r C a l W A M T E C College of Marin – Together with staff from the Environmental Landscape and Biology Departments at the College, MMWD staff are at the forefront of developing a new Northern California Irrigation Technology Center. This Center will be the first of its kind north of Fresno and is envisioned to offer students and the community a world-class conference center, classrooms, and research facilities focusing on sustainable urban landscape practices. The first ground-breaking class will be hosted by MMWD at the proposed site of the new Center at the Indian Valley Campus on Saturday, July 22. The California Conservation Corps, U.C. Davis Extension, and the Master Gardeners are also new partners in this effort.
Technology	MMWD completed a pilot landscape water use satellite study and developed GIS tools that enable measurements of landscape water needs automatically. Partnerships with regional agencies, the Department of Water Resources and the Bureau of Reclamation are being explored to obtain higher resolution images and develop a full-scale production tool to measure landscape areas. This tool will transform the process of creating water budgets, increasing staff productivity 10-fold when combined with an improved conservation database.
Partnerships	In cooperation with the College of Marin and SPAWN, MMWD helped to create “Balance on the Edge”, a streamside garden exhibit at the San Francisco Flower and Garden Show. This design demonstrates how beautiful landscapes can also benefit natural ecosystems.

Partnerships		To make it easier for MMWD customers to adopt Bay-Friendly gardening practices, the District is introducing a new rebate program for efficient irrigation equipment and supplies. Bay-Friendly gardening mimics natural systems which recycle everything—water, debris, and nutrients—endlessly. It means paying attention to climate and local conditions, and using appropriate plants that are adapted to those conditions. "Bay-Friendly Landscaping" is a Stopwaste.org program developed by the Alameda County Waste Management Authority and the Alameda County Source Reduction and Recycling Board.
	MMWD is actively working with PG&E, the Marin Energy Team, and Sustainable Marin to explore relationships between the benefits of energy and water conservation. MMWD was one of the first water agencies to join the Cities for Climate Protection program that is dedicated to reducing greenhouse gases caused by electrical generation.	
Events	At the Marin County Fair, the first-ever "Eco-Sperience" focusing on healthy living in a healthy environment will be hosted by the Marin Municipal Water District. With over 10,000 square feet of outdoor space filled with hands-on educational activities for people of all ages, the "Eco-Sperience" is sure to be action packed!	
Innovation		Facilities & Watershed and Conservation staff worked together to build a 4-foot high waterwheel made of redwood recovered from Mt. Tam. In this picture, students learn about the relationship between water and energy by turning a hand-operated pump. The water is pumped to a trough and falls onto the wooden paddles which cause the wheel to turn.

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POLICY RECOMMENDATIONS

Water supply and water demand are two sides of same decision making equation. If either side is over- or under-estimated, serious financial and social consequences can occur. Policies that encourage water efficiency through rate structures, incentives, and public awareness messaging make the best use of public dollars and, at the same time, reduce impacts to the environment and the cost of new water supply projects.

The job of conservation programs is to stabilize long-term consumption patterns at the lowest level possible. This task must be accomplished cost-effectively, and the programs must be embraced by a majority of customers in order to succeed.

Staff recommends an overall policy strategy that encourages participation by the greatest number of customers. This strategy differs from recommendations in the District's 1994 Master Plan, which contained programs to target customers using the greatest amount of water. Facts that support this recommendation include:

- Data derived from site survey experience shows that customers in the "top 20%" include parks, golf courses, and estates with extensive landscaping. When these sites have quality irrigation systems and are professionally managed, potential water savings can be relatively small. Residential customers in the "top 20%" have proven to be particularly resistant to changing water use behaviors. Resources spent to influence this small group of customers are often ineffective.
- Approximately 70% – 95% of residential accounts are billed at the Tiers 1 and 2 levels. Although each of these accounts uses less water than customers in Tiers 3 and 4, the water use efficiency is often low. By casting a wider program "net", the cumulative savings potential is increased.
- Conservation programs that reach a larger customer base increase the probability for behavior-based savings. Experience during drought emergencies shows that short-term savings can be as high as 65%. Long-term savings would be substantial if even 10% of customers implemented behavioral changes (e.g., turning off faucets, taking shorter showers, or reducing minutes on sprinkler timers).
- Customer surveys done in 2003 and 2005 indicate that more than 80% of customers support increased conservation, while 57% of those asked were not aware of any programs at the District. Thirty-seven percent had done nothing to conserve water.

The most successful conservation programs provide financial support, services, and information to help customers reduce costs and enhance their lifestyle. We have learned that:

- Incentives are the backbone of effective conservation programs. Incentives reinforce the District's role as a good steward of public resources.
- Positive messages about conservation build customer confidence and goodwill in the District. For example, in the past year, MMWD has shifted the conservation message away from penalties and enforcement action to focus on services and rebates. This shift has resulted in greater customer participation in programs, and a significant reduction in antagonistic phone calls.
- High visibility public outreach and education programs are essential for conservation programs to achieve sustainable long-term demand reductions. When asked, most customers want to help take care of Marin's natural resources.
- Water pricing is a powerful conservation tool that can provide reliable improvements in efficiency.
- Staff recommends a comprehensive study of the District's tiered rate structure, entitlements, connection fees, and water budgets be performed. As many as one-half of the water budgets in the District are inaccurate and based on inefficient historical use patterns.
- Conservation ordinances and penalties can be effective if they are enforceable. New development ordinances and conservation requirements attached to re-development permits are enforceable and should be a primary goal for MMWD during the next year. Widespread adoption of conservation requirements by local permitting agencies would yield significant savings at a very low cost to the District.

Funding

To provide long-term funding for conservation programs and revenue for District operations, the following funding mechanisms are proposed:

- Regular tier-break reviews and adjustments, as warranted, to monitor consumption trends and maintain customer awareness about the importance of conservation.
- Service and/or connection fees that fund conservation programs and offset revenue losses resulting from lowered consumption.
- On-bill conservation surcharges based on current consumption. Surcharges would be waived in any billing period where consumption was within a pre-determined water budget. Surcharges would be added in any billing period where use exceeded budgeted amounts. Budgets would be determined based on number of residents and landscape area.
- Bond financing to provide capital for conservation plumbing fixtures, secured with conservation surcharges.
- On-bill financing, such as the "Pay-As-You-Save" system or other zero-interest loan option.

COST SAVING STRATEGIES

Staff will work collaboratively with agencies, organizations, retailers, and manufacturers that can provide co-sponsoring, or in-kind support for MMWD's programs. Cost savings will be realized in several key program areas:

- Administrative costs can be reduced or deferred to other service providers.
- Program participation will increase via networking among customers.
- Communication and marketing messages will be more effective as they reach more customers more often.
- Rebate and incentive costs can be reduced more quickly if market transformation occurs at a faster pace—water-saving devices become more available and affordable.
- Public events will cost less to produce and reach more customers.
- Water savings from devices and behavioral changes will increase more rapidly with growing public awareness.
- Political support for rate adjustments may increase if more customers realize direct benefits from District programs.
- Funding opportunities will be increased due to greater program visibility and regional impacts.

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CONSERVATION MARKETING PLAN

Background

Historically, Marin Municipal Water District has been at the forefront of promoting water conservation. But record rainfall in recent years has lulled the public's concern about water conservation. The District has not communicated about the need for conservation as aggressively as in the past. Marin's water use is currently at its highest levels for the quarter since 1987.

Marin's water supplies are limited and precariously tied to annual rainfall. Marin is never more than one year away from a drought.

While drought conditions do not currently exist, MMWD recognizes the need to reinvigorate awareness of the need to use water wisely among customers. This has recently become even more urgent, as Marin's access to Sonoma County water may be curtailed because of last winter's scant rainfall.

Marin residents have a strong connection to the natural environment, are highly informed about environmental issues, and have rallied to conserve water in past drought years. Research and history indicate they are willing to "do the right thing" if given the information and support to do so. With environmental concerns at an all-time high, the public is highly receptive to taking action that can advance environmental solutions.

Water-saving technologies have evolved since Marin was last hard hit by drought, and MMWD is stepping up efforts to replace toilets, urinals, washing machines, and sprinkler systems with models offering greater efficiency. But MMWD's conservation messages cannot be limited to the installation of water-saving devices, "tips," rebates, or telling people that saving water is a good idea. As a public utility capable of reaching a vast customer base, and as the county's largest user of electricity, MMWD has an opportunity—and a responsibility—to assume a leadership role in conservation.

We recommend that MMWD position itself as a responsive, well-run public agency committed to conservation. This can be addressed by reinforcing conservation messaging throughout our communications with our customers, and by modeling conservation, leadership, and customer care throughout our operations.

Messaging and Positioning

Connecting MMWD to what our customers believe in and care about is essential to garnering their trust and buy-in.

Currently, the District isn't communicating a coherent conservation message. There is an abundance of collateral material offering conservation tips, technical fixes, and rebates. This information is by and large technical, not clearly targeted to intended audiences, and does not connect to the conservation values that are deeply held among people living in Marin.

The goal isn't to inform customers about MMWD or what it does. The goal is to build a reservoir of confidence and trust, which will be critical should conditions require MMWD to ration water use. MMWD needs to focus less on what it does than on the benefits provided.

The core strategies of MMWD's conservation campaign are to:

1. Connect the District's values to community values;
2. Make MMWD user-friendly and a "partner" in its interactions with customers;
3. Provide customers with easy-to-adopt programs and behaviors for using less water;
4. Demonstrate that the District is itself taking steps to conserve and sustain Marin's environment.

Audience

MMWD's audience includes all of its 190,000 customers. Reminding them of the need to be mindful about water—use well, not waste—is an ongoing and overarching goal of the District's communications.

MMWD has identified audiences where it expects to have the greatest impact on water use as well as awareness of water conservation ethic and education (see accompanying grid for breakout of targets and potential actions):

1. Residential customers
 - Homeowners with irrigation systems
 - HOAs
 - Professional landscapers, plant nurseries, garden supply centers
 - Civic, health, environmental, and conservation organizations
 - Highest water users
2. Commercial customers
 - City and county public works departments
 - Open space and parks departments
 - Schools (maintenance supervisors)
 - Colleges (maintenance, programs)
 - Hospitals
 - Private businesses
 - Golf courses
 - Owners of multi-family residential housing
 - Visitors/Hotels/Restaurants
3. Teachers, school-age children, college students and their families



CONSERVATION MARKETING

target audiences, programs, strategies

[illegible]

Trends

In addition to developing conservation programs and incentives—some of which are included below—MMWD can have a greater impact by connecting its messages with issues the media is currently covering, as well as those of concern to customers.

Some examples of current media trends that MMWD can tie to are:

- Alternative energy/energy savings
- Bottled water
- Carbon trading/offsets
- Clean Technologies
- Climate change
- Dams
- Ecological footprint
- Endangered species
- Environment and health
- Fitness
- Fuel efficiency
- Gas prices
- Global warming
- Green building
- Green business
- Greenhouse gases
- High efficiency light bulbs
- Land use
- Organics and local food
- Outdoor recreation
- Recycling
- Salmon
- Sustainability
- Transportation
- Voluntarism
- Waste reduction

Recommendations

- MMWD establish and publicize a measurable, achievable, short-term target to rally around and demonstrate the water savings that Marin can achieve with small changes in water-use habits.
- MMWD adopt ongoing and consistent messaging that responsible water use is a way of life, whether or not drought conditions are present.
- MMWD audit, set targets, and create a plan to reduce its own ecological footprint and set an example to other Marin agencies, businesses, and customers.
- MMWD associate itself with the mountain, not the faucet (emphasizing values, not plumbing).

Communication and Customer Support

** suggests high priority*

- *1. Institute semi-annual personal letters from Board members to their constituents, explaining MMWD's current water situation, commitment to conservation, conservation efforts, drought protocols, and what customers can do to be more conscious consumers.
- *2. Institute a monthly email from MMWD Board to Marin's elected officials/staffs on status of water supply, to build awareness and support for MMWD's conservation efforts.
- *3. Cultivate a network of elected and agency leaders, educators, conservation leaders, and green businesses. Enlist public agencies and Marin businesses as co-sponsors/ endorers of MMWD water-saving campaign.
- *4. Redesign and produce a series of billing inserts and billing envelopes tied to the conservation campaign and designed to regain customers' attention and inspire them to take water-saving actions.
- *5. Give customers an opportunity to opt-in to a "conservation education fund" or add small assessment to bills that would be dedicated to conservation education and restoration activities, including school gardens, community gardens, field trips, volunteer programs, and outreach.

-
- *6. Upgrade Web site to be interactive and customer-friendly, including features such as:
 - Calculators for water use and reduction
 - Plant selection database
 - “How-tos” (video/multimedia format?) such as correcting irrigation problems, resetting sprinklers, installing a pressure valve, finding a leak, testing your toilet, etc.
 - Downloadable rebate forms with online submission, online scheduling for a water audit, etc.
 - Enable email from Web site to permit MMWD to answer customers' conservation questions
 - Enable one-click email contact from Web site to report a leak or misuse
 - Include ETo information, standardized run times, when to start watering, etc., on home page
 - *7. Collect email addresses. Develop an email news format with visually interesting and timely information and customer incentives.
 - *8. Upgrade phone system and install a “Conservation Hot Line,” with recorded messages to answer common questions, as well as the ability to talk to an “expert” or leave a message with assurance of a reply via phone or email within a specific time period.
 - *9. Develop a graphically unified family of brochures to replace the many now in use, to create a visual identity for MMWD’s conservation programs.
 10. Develop a “conservation pledge” that customers can take. Display pledge at public events, in stores, and on Web site. Offer incentives (such as coupons for water-saving devices, plants) or premiums (such as non-plastic water bottle, watershed recreation map, etc.) for those who sign the pledge.
 11. Host a workshop of water agencies to share best practices.
 12. Create a branded “certification” program, modeled on Marin's Green Business Certification program, for organizations that take actions to reduce water use and promote resource efficiency to their colleagues, customers, and employees.
 13. Display outdoor banners and install attractive display in MMWD lobby. Identify opportunities for public displays.
 14. Participate in and create tie-ins to community events—town parades, picnics, Farmers’ Markets, art festivals, and fairs (such as MMWD's Eco-Sperience environment at the Marin County Fair that focuses on water and healthy living in a healthy environment).

Media Outreach

- *15. Develop a regular graphic feature (for Marin IJ) that illustrates progress toward a water-saving goal. (Current graphic is on existing supply).
- *16. Proactively place stories on topics tied to current trends:
 - What's on the horizon in ways to save water (new water meter technologies, smart irrigation controllers, GPS to pinpoint progress of invasive plants in the watershed)?
 - Who's leading the way in water conservation?
 - How does Marin compare to other districts, states, and nations in innovations and achievements in water conservation?
 - What are the economic benefits/impacts of water conservation?
- *17. Develop and run advertising on water conservation themes.
- 18. Develop a graphic or illustration tracing where Marin's water comes from. Highlight non-human dependence on water.
- 19. Develop outreach materials for publication in newsletters of nonprofits, agencies, and large employers, and posters for display in schools, stores, and businesses.

Programs

- *20. Simplify rebate programs. Make rebates seamless for customers— i.e., rebate submission at point of purchase.
- *21. Offer cash rebates and incentives to customers who voluntarily cut their water use 10% (note: PG&E's Flex Your Power campaign). Incentives might include coupon for drought-resistant plants, non-plastic water bottle, calendar, watershed recreational map, etc.)
- *22. Institute amnesty and incentive campaign for multi-unit dwellings. (Despite free install and rebates, many residential multi-dwelling units are out of compliance with plumbing efficiency standards.)
- *23. Prepare water conservation outreach targeted to renters, both residential and commercial.
- *24. Mount "do-it-yourself" leak-detection awareness campaign.
- *25. Work with schools and existing school programs (i.e., Next Generation, River of Words, school and community gardens) to make nature/conservation ethic message congruent with MMWD messaging.
- *26. Provide Spanish-language programs and collateral materials for district communications. Market to Spanish-speaking landscape workers.

27. Capitalize on current high level of interest in the environment by offering direct install of residential toilets, with charge to customers' water bill (on-bill financing).
28. Develop field trip programs for schools, families, scouts, church, and other groups.
29. Explore creating a "junior watershed ranger" program.

Partnerships and Sponsorships

- *30. Leverage broad awareness and interest in climate change and "being green" with partnerships and sponsorships with nonprofits, organizations, businesses, and agencies who share MMWD's environmental and public service goals.

Sample Campaign: NURSERY/GARDEN SUPPLY CENTER

District customers are purchasing new plants and irrigation equipment for summer; below is a menu of ideas. Implementing such a campaign typically requires months of development and coordination with all parties and partners.

1. Signage promoting low water use and native plants, zone designations, and proper irrigation equipment, timing, rain shut-off, and irrigation best practices at nurseries and garden centers.
2. Advertising with the same message in the IJ and Pacific Sun. If possible, tie in a special discount or sale at the store for co-branding and cooperation to bring in lots of customers at one time.
3. Collection of email address at time of purchase to send irrigation/conservation tips via email: when to start watering, when to add or decrease time on automatic systems, when new information or interactive features are posted at www.marinwater.org.
4. Co-branded incentive with retailer, offering a discount coupon on future purchase of water saving plants and products.
5. Garden signs for home use displaying an icon with strategic message: “doing our part to save water for next year” (language to be developed) along the lines of the ladybug “pesticide free zone” signs or the “Certified Green Business” logo.
6. Eye-catching and thematically unified tips card showing the top 5 – 10 things a water conscious gardener does.
7. Display of appropriate plants and irrigation equipment.
8. Discount tickets to Eco-Sperience/County Fair with minimum purchase; perhaps tie in visits to the various exhibits or workshops.
9. Offer a simplified rebate application process (perhaps an MMWD staff person at a table to help customers complete) as well as a coupon for a discount at that store for suitable devices or plants at the next visit if rebate form is filled out in store.
10. Contact and coordinate with environmental and sustainability groups for assistance in “getting the word out” through their email lists, communications, and meetings. Craft a simple message and identifying graphic to supply for their use. Investigate opportunities for MMWD spokespersons to make short presentations.

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CONCLUSIONS

1. The District is at a critical turning point in its history and must make significant investments that balance water supply and demand, and fund infrastructure maintenance and operations.
2. Investments in water conservation programs have reliably reduced water demand in the District for over 30 years and continue to yield consistent results.
3. The conditions now exist for the District to launch an aggressive, sustained conservation campaign and set a new achievement standard for water efficiency in California:
 - Water supplies are limited; new supplies are expensive to develop and impact the environment.
 - The public is knowledgeable and motivated.
 - The District has the in-house expertise to develop and operate successful conservation programs.
 - New technologies are available to reliably reduce consumption into the future.
 - Although conservation is a cost-effective method to extend available water supplies and provides environmental benefits, under the current District pricing structure, lowered water sales also reduce District revenue. Solving this financial catch-22 is the most critical challenge limiting conservation today.
4. Only by making a long-term commitment to overcome financial and social barriers, and to invest in public education and technology, can the District secure reliable conservation savings.

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Appendix I: Title 13

Title 13

WATER SERVICE CONDITIONS AND WATER CONSERVATION MEASURES

Chapters:

- 13.01 Eliminated (Ord. 346, 1993)
- 13.02 Water Conservation and Dry Year Water Use Reduction Program
- 13.03 Water Budgets and Related Conservation Measures

Chapter 13.02

WATER CONSERVATION AND DRY YEAR WATER USE REDUCTION PROGRAM*

Sections:

- 13.02.010 Declaration of purpose.
- 13.02.015 Declaration of Water Shortage Emergency.
- 13.02.020 Water waste prohibitions.
- 13.02.021 Water Conservation: Normal Year Water Conservation
- 13.02.030 Water use reduction in dry periods.
- 13.02.040 Calculation of allowable water use.
- 13.02.050 Variances.
- 13.02.060 Enforcement.
- 13.02.065 Unauthorized water use.
- 13.02.070 Further prohibitions.
- 13.02.080 Penalty for violations.
- 13.02.090 Appeals.
- 13.02.100 Remedies/cumulative.
- 13.02.110 Chapter controlling.

13.02.010 Declaration of purpose. The purpose of this chapter is to provide a water conservation plan to minimize the effect of a shortage of water on the district's consumers and to adopt provisions that will significantly reduce the consumption of water during an extended dry weather period (drought), thereby extending the available water for the district's consumers while reducing the hardship on the general public to the greatest extent possible, voluntary conservation efforts having proved insufficient to achieve these ends. The programs developed in this chapter are triggered based on lake storages developed by computer simulations performed utilizing the district's seven reservoirs with approximately eighty thousand acre-feet of total capacity and up to nine thousand acre-feet per year of imported water. (Ord. 387 §1, 1999; Ord. 316 §2 (part), 1991).

* Prior ordinance history: Ords. 279, 286, 290 and 314.

13.02.015 Declaration of Water Shortage Emergency. When the district's lake storage on December 1 is projected to be in the vicinity of, or less than, thirty thousand acre-feet, the board may declare by resolution a Water Shortage Emergency as defined in the Water Code and then advise the State Water Resources Control Board of the need to conserve local storage. (Ord. 387 §1, 1999)

13.02.020 Water waste prohibitions. No customer of the district shall make, cause, use or permit the use of potable water from the district for residential, commercial, industrial, agricultural, governmental or any other purpose in a manner contrary to any provision of this section.

(1) Prohibited Nonessential Uses Applicable to All Consumers. It is unlawful for any person, firm, partnership, association, corporation, or political entity to use water from the district for the following nonessential uses:

(A) The washing of sidewalks, walkways, driveways, parking lots and all other hard-surfaced areas by direct hosing, except as may be permitted by current regulations pertaining to urban water runoff pollution prevention as defined by the Marin County Stormwater Pollution Prevention Program and other controlling agencies;

(B) The escape of water through breaks or leaks within the consumer's plumbing or private distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of forty-eight hours after the consumer discovers such a leak or break, or receives notice from the district of such leak or break, whichever occurs first, is a reasonable time within which to correct such leak or break;

(C) Non-recycling decorative water fountains.

(D) Restrictions on Irrigation. Irrigation shall not be conducted in a manner or to an extent that allows water to run off or overspray the areas being watered. Every consumer is required to have his/her water distribution lines and facilities under control at all times to avoid water waste.

(E) Any excess water runoff flowing onto the public right of way at a rate of 1 gallon per minute or greater not caused by storm water or naturally occurring groundwater, is prohibited.

(F) Using a garden hose without a shut-off nozzle.

(G) Landscape irrigation between the hours of 9:00 a.m. and 7:00 p.m.

(H) Operating outdoor irrigation systems using potable water for the purpose of irrigating ornamental landscape areas or turf areas on more than three days within any week of the calendar year. Customers are strongly encouraged to irrigate ornamental landscapes or turf on fewer days and only as required to maintain plant health and replace evapotranspiration loss as defined by the California Irrigation Management Information System.

(I) The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall.

(2) Restrictions on Reverse-Osmosis Units. The installation of reverse-osmosis water purifying systems not equipped with an automatic shutoff unit is prohibited.

(3) The following are prohibited for new connections:

(A) Single-pass cooling systems for air conditioning or other cooling system applications unless required for health or safety reasons;

(B) Non-recirculating systems for conveyer carwash applications.

(4) Exemption from daytime water prohibition: Notwithstanding anything contained in this Title 13, testing and repairing irrigation systems for the purpose of eliminating water waste is permitted during the hours of 9:00am and 7:00pm.

(Ord. 428 §2, 2015; Ord. 427 §2, 2014; Ord. 421 §2, 2011; Ord. 387 §1, 1999; Ord. 332 §1, 1992; Ord. 316 §2 (part), 1991).

13.02.021 Water Conservation: Normal Year Water Conservation.

- (1) Declaration of Purpose. The purpose of this chapter is to provide a water conservation plan to maximize the water supply during periods of relatively normal rainfall and to minimize the effect of a shortage of water on the district's consumers during an extended dry weather period (drought). The normal year conservation programs in this chapter are based on industry standards promulgated by the American Rainwater Catchment Systems Association (ARCSA), Bay-Friendly Landscape and Gardening Practices (Bay-Friendly), Best Management Practices developed by the California Urban Water Conservation Council (CUWCC), California Department of Water Resources (DWR), California Invasive Plant Council (Cal-IPC), California Irrigation Management Information System (CIMIS), Consortium for Energy Efficiency (CEE), University of California Cooperative Extension (U.C. Extension), USEPA WaterSense Program (WaterSense), Water Use Classification of Landscape Species (WUCOLS), and other recognized conservation industry standards. In every case, the intent of this chapter is to remain a living document, incorporating the most restrictive industry standards in practice at the time in question. In the event that there is a conflict in regulations, the default shall be determined by the District, or as required by law.

Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use. This policy protects local water supplies through the implementation of a whole systems approach to design, construction, installation and maintenance of the landscape resulting in water conserving climate-appropriate landscapes, improved water quality and the minimization of natural resource inputs.

- (2) Definitions. Definitions used in this chapter are as follows:

- A.** Application for Service from an Existing Connection: The application for service from an existing connection, whether it is a new, increased, or modified water service, in a customer's name for a property.
- B.** Backflow Prevention Device: means an approved device installed to District standards which will prevent backflow or back-siphonage into the potable water system.
- C.** Booster Pumps: used where the normal water system pressure is low and needs to be increased.
- D.** Bubblers: Irrigation heads that produce a large volume of output, measured in gallons per minute (gpm) that flood the soil area surrounding the bubbler head.

- E.** Check Valve: a valve located under a sprinkler head or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- F.** Common Interest Development: community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- G.** Compost: the decayed remains of organic matter that has rotted into a natural fertilizer suitable as a soil amendment to enhance plant growth.
- H.** Developed landscape area: All outdoor areas under irrigation, swimming pools, and water features, but excluding hardscape areas.
- I.** Ecological Restoration Project: a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- J.** Effective Rainfall: the portion of total rainfall which becomes available for plant growth and that is used by the plants, defined as an average of 25% of total rainfall.
- K.** Emitter: a drip irrigation device that delivers water slowly from the system to the soil.
- L.** Estimated Total Water Use (ETWU): a calculated amount of water needed to irrigate a given landscape, and used as the basis for assigning water budgets at a site.
- M.** ET Adjustment Factor: a factor of 0.6, that, when applied to reference evapotranspiration as measured by a CIMIS weather station, or equivalent, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.
- N.** Evapotranspiration rate: the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specific specified time.
- O.** Flow Rate: the rate at which water flows through pipes, and valves and emission devices, measured in (gallons per minute, gallons per hour, or cubic feet per second).
- P.** Hardscape: Impermeable areas including patios, decks and paths, driveways and sidewalks.
- Q.** Head-to-Head Coverage: a high-flow irrigation system designed to provide an irrigation spray pattern that delivers water from one sprinkler head to the next.

- R.** High-efficiency Fixture(s): High efficiency fixtures shall, at a minimum, meet the current requirements of the Water Sense labeling program and those of the California Department of Water Resources and the District.
1. High-efficiency Irrigation Controller: An electronic device that controls the amount of time and frequency of operation for an irrigation system and adjusts automatically to compensate for the seasonal plant water requirements at the site (commonly referred to as weather-based irrigation controllers).
 2. High-efficiency Irrigation System: An irrigation system connected to a water service where the overall distribution uniformity (how evenly water is distributed across the irrigated landscape area) is a minimum of 71% and the volume of water used is consistent with seasonal plant requirements as defined by the District.
- S.** High volume irrigation: An irrigation device or system that delivers water to the landscape in a spray, stream-like, or flooding manner from above-ground irrigation nozzles with output expressed in gallons per minute (include many bubblers and micro-spray devices).
- T.** High-Flow Sensor: a device for sensing the rate of flow in the irrigation system.
- U.** High-water-use plants: Annuals, plants in containers, and plants identified as high-water-use in the current edition of the WUCOLS list published by the U.C. Extension. High-water-using plants are characterized by high transpiration rates, shallow rooting, the need for frequent watering during summer months or with exposure to hot and drying climatic conditions.
- V.** Hydrozones: A distinct grouping of plants with similar water needs and climatic requirements. Hydrozone types include, but are not limited to turf, high-water-use plants, low-water-use plants, microclimates (i.e., sun or shade, southern or northern exposures, surrounded by highly reflective surfaces), and partially hardscaped areas with plants, pool areas and water-use features.
- W.** Infiltration Rate: the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- X.** Invasive Plant Species: species of plants not historically found in California and/or that spread outside cultivated areas and can damage environmental or economic resources as determined by Cal-IPC (www.cal-ipc.org) and the District.
- Y.** Irrigation Design Capacity: The maximum amount of water calculated to flow through an irrigation system, or section of a system, based on pipe size, pipe material, and operating pressure.

- Z.** Irrigation Efficiency (IE): a calculated measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this chapter is 0.71.
- AA.** Irrigation Meter: a separate water meter that measures the amount of water used exclusively for landscape uses, such as lawns, washing exterior surfaces, washing vehicles, filling pools, etc.
- BB.** Isolation Valves: used to isolate and shut-off water to a portion of the piping system.
- CC.** Landscape Agent: The consumer's designated representative for interacting with the District on landscape plan reviews.
- DD.** Landscape Plans: This includes a planting plan, an irrigation plan, and a grading plan drawn at the same scale and that clearly and accurately identify specified plants, irrigation layout, equipment, finish grades and drainage, specifications and construction details, plan sheet numbers, and drawing date of plans.
- EE.** Landscape Water Budget: The amount of water allowed for landscape water use at a site, adjusted on a seasonal basis, as determined by the District.
- FF.** Landscaped Area: the entire parcel, less the building footprint, driveways, and non-irrigated portions of parking lots and hardscapes. Water features, areas dedicated to edible plants, such as orchards or vegetable gardens are included in the calculation of the landscaped area. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other nonirrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- GG.** Lateral Line: Non-pressurized pipe that is located downstream of an irrigation valve.
- HH.** Low Volume Irrigation: Irrigation devices, commonly called drip or point-source irrigation, with output measured and typically expressed in gallons per hour (gph), that apply water directly to soil in the plants root zone.
- II.** Low-Head Drainage: water that flows out of the system after the valve turns off due to elevation changes within the system.

- JJ.** Low-water-use plants: Plants identified as low-water-use in the current edition of the Water Use Classification of Species list published by the U.C. Extension. (generally, plants that once established, can survive on two irrigations per month during the summer months).
- KK.** Main Line: the pressurized pipeline that delivers water from the water source to the valve or outlet.
- LL.** Maximum Applied Water Allowance (MAWA): for design purposes, the upper limit of annual applied water for the established landscape as determined by the District.
- MM.** Microclimate: The climate of a specific area in the landscape that has substantially differing sun exposure, temperature, or wind, than adjacent areas or the area as a whole.
- NN.** Moderate Water Use Plants: ornamental trees, shrubs ground covers, and perennials and other plants recognized as moderate-water-use by WUCOLS.
- OO.** Mulch: any organic material such as leaves, bark, straw, compost or other inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature and preventing soil erosion.
- PP.** Operating Pressure: the pressure when water is flowing through the irrigation system.
- QQ.** Overhead Irrigation: those systems that deliver water through the air (e.g., pop-ups, impulse sprinklers, spray heads, rotors, micro-sprays, etc).
- RR.** Overspray: Water delivered by an irrigation system outside the targeted landscape area during average operating conditions onto any adjacent hardscapes or other non-landscaped areas during an irrigation cycle, and specifically, for purposes of this Code, limited to maximum of 5% of spray radius area for each nozzle.
- SS.** Pervious: any surface or material that allows the passage of water through the material and into the underlying soil.
- TT.** Plant Factor: a factor specified in WUCOLS that, when multiplied by reference evapotranspiration (ET_o), estimates the amount of water used by specified plants.
- UU.** Point of Connection (POC): The location where an irrigation system is connected to water supply.

- VV.** Precipitation Rate: the rate of application of water measured in inches per hour.
- WW.** Pressure Regulating Valve: a valve that automatically reduces the pressure in a pipe.
- XX.** Project Applicant: the individual or entity submitting a Landscape Documentation Package, to request a permit, plan check or design review from the local agency. A project applicant may be the property owner or his or her designee.
- YY.** Property: Any structure, including but not limited to single family residential, multi-family residential and floating homes, built and/or intended primarily for sheltering or housing of any person and ancillary structures thereto.
- ZZ.** Property Owner: A person or entity that owns or has the financial authority or control over the property to comply with the requirements set forth in this chapter.
- AAA.** Rain Sensor: a system component which automatically shuts off and suspends the irrigation system when it rains.
- BBB.** Recreational Area: areas dedicated to active play or recreation such as sports fields, school yards, picnic grounds, or other areas with intense foot traffic parks, sports fields and golf courses where turf provides a playing surface.
- CCC.** Recycled Water: means tertiary treated water which results from the treatment of wastewater, is suitable for direct beneficial use, and conforms to the definition of disinfected tertiary recycled water in accordance with state law.
- DDD.** Reference Evapotranspiration or ETo: a standard measurement of environmental parameters which affect the water use of plants and are an estimate of the evapotranspiration of a large field of four to seven-inch tall, cool-season grass that is well watered.
- EEE.** Rehabilitated Landscape: any re-landscaping project that requires a building or grading permit, plan check or design review.
- FFF.** Residential Customer: The person(s) or entity with an existing water service connection for a residential property.
- GGG.** Runoff: Irrigation water that is not absorbed by the soil or landscape area to which it is applied and which flows onto other non-targeted areas, including runoff into storm drain systems.

- HHH.** Soils Laboratory Report: the analysis of a soil sample to determine nutrient content, composition and other characteristics, including contaminants, for horticultural purposes.
- III.** Special Landscape Area (SLA): an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
- JJJ.** Sprinkler Head: a high volume irrigation device that delivers water to the landscape through a spray nozzle.
- KKK.** Static Water Pressure: the pipeline or municipal water supply pressure when water is not flowing.
- LLL.** Station: an area served by one valve or by a set of valves that operate simultaneously.
- MMM.** Submeter: a separate meter that is located on the private side of the water system and is plumbed to measure all water that flows only through the irrigation system. This meter is to be used by the owner to monitor irrigation water use and will not be read or maintained by the District.
- NNN.** Swing Joint: an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
- OOO.** Turf: A mat layer of monocotyledonous plants with shallow rooting structures requiring frequent watering during the growing season; i.e., cool or warm season grass consisting, but not limited to Blue, Rye, Fescue, Bent, Bermuda, Kikuyu, St. Augustine, Zoysia, and Buffalo.
- PPP.** Valve: a device used to control the flow of water in the irrigation system.
- QQQ.** Valve Manifold: a one-piece manifold for use in a sprinkler valve assembly that includes an intake pipe having a water inlet and a plurality of ports adapted for fluid connection to inlets.
- RRR.** Water Budget: an allocation of water based on plant water needs, used to determine the billing tiers for customers with dedicated landscape irrigation meters, for example.
- SSS.** Water Feature: a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area.

TTT. Weather Based or Sensor Based Irrigation Control Technology: uses local weather and landscape conditions to tailor irrigation schedules to actual conditions on the site or uses historical weather data.

UUU. WUCOLS: the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

(Ord. 421 §3(part), 2011: Ord. 403 §4, 2004: Ord. 394 §1, 2001: Ord. 385 §1(part), 1999): Ord. 326 §1(part), 1991).

(3) Requirements for All Services.

A. Pressure Regulation. A pressure-regulating valve shall be installed and maintained by the consumer if static service pressure exceeds 80 pounds per square inch (psi), and be set at a maximum operating pressure of 60 psi at the regulator outlet. The pressure-regulating valve shall be located between the meter and the first point of water use, or first point of division in the pipe, and pressure-relief valves and other plumbing safety devices shall be installed as required by local codes. The operating pressure requirement may be waived if the consumer presents evidence satisfactory to the District that high pressure is necessary in the design and that no water will be wasted as a result of higher pressure operation.

B. Interior Plumbing Fixtures. All plumbing installed, replaced or moved in any new or existing service shall be high-efficiency fixtures and shall meet the following minimum requirements:

1. High-efficiency Clothes Washers: Residential or commercial clothes washers that meet the current highest water efficiency standards as defined by the District. The General Manager shall have authority to grant a variance from the requirements of this section based upon financial hardship.
2. High-efficiency Lavatory Faucet: The maximum flow rate shall not exceed 1.5 gallons per minute (gpm) at a pressure of 60 pounds per square inch (psi) at the inlet, when water is flowing.
3. High-efficiency Shower Head: The manufacturer shall specify a maximum flow rate equal to or less than 2.0 gallons per minute (gpm), at a pressure of 60 pounds per square inch (psi) at the inlet, when water is flowing.
4. High-efficiency Toilet: Any WaterSense listed toilet rated at an effective flush volume of no greater than 1.28 gallons.
5. High-efficiency Urinal: The average water consumption shall not exceed 0.25 gallons per flush (gpf).

- C. Pool Covers. Pool covers are required for all new outdoor swimming pools. (Ord. 421 §3(part), 2011; Ord. 385 §1(part), 1999); Ord. 326 §1(part), 1991).

(4) Non-Residential Interior Plumbing Fixtures. All plumbing installed, moved or replaced in any new or existing service shall be high-efficiency fixtures and shall meet the following minimum requirements: (Ord. 421 §3(part), 2011).

- A. Faucets. Lavatory faucets, other than public lavatory or metering faucets, shall deliver 1.5 gallons, or less of water per minute.

1. **Metered Faucets** Self-closing or self-closing metering faucets shall be installed on lavatories intended to serve the transient public, such as those in, but not limited to, service stations, train stations, airports, restaurants, and convention halls. Metered faucets shall deliver no more than .25 gallons of water per use. Self-closing faucets shall deliver no more than .5 gallon per minute.
2. **Public Lavatory** (other than metering) faucets shall deliver 0.5 gallons, or less, of water per minute.
3. **Kitchen, Bar and Utility/Service** (other than hand-washing sinks) faucets shall deliver 2.2 gallons, or less, of water per minute.

- B. Private Use, Public Use. *Pursuant to the International Plumbing Code (IPC):* “In the classification of plumbing fixtures, “private” applies to fixtures in residences and apartments, and to fixtures in nonpublic toilet rooms of hotels and motels and similar installations in buildings where the plumbing fixtures are intended for utilization by a family or an individual...” “public” applies to fixtures in general toilet rooms of schools, gymnasiums, hotels, airports, bus and railroad stations, public buildings, bars public comfort stations, office buildings, stadiums, stores, restaurants and other installations where a number of fixtures are installed so that their utilization is similarly unrestricted”.

- C. Commercial Equipment Specifications.

1. **Dishwashers.** Dishwashers are machines designed to clean and sanitize plates, glasses, cups, bowls, utensils, and trays by applying sprays of detergent solution (with or without blasting media granules) and a sanitizing final rinse. Dishwashers shall meet the current specifications set by the Consortium for Energy Efficiency’s (CEE) “High Efficiency Specifications for Commercial Dishwashers and any and all amendments thereto”.
2. **Steamers.** A “steamer” or “steam cooker” is a device with one or more food steaming compartments in which the energy in the steam is transferred to the food by direct contact. Steamers shall meet the current specifications set by the CEE’s “High Efficiency Specifications for Commercial Steamers and any and all amendments thereto”.

3. **Pre-Rinse Spray Valves.** Pre-rinse valves use a spray of water to remove food waste from dishes prior to cleaning in a dishwasher. Pre-rinse spray valves shall (1) deliver 1.3 gallons, or less, of water per minute based on tested performance by the FSTC and (2) meets the cleaning performance standard of 26 seconds per plate or less, based on the *ASTM Standard Test Method for Performance of Pre-Rinse Spray Valves and any and all amendment thereto*.
4. **Dipper Wells.** A “dipper well” is a basin into which clean tap water flows constantly to provide a fresh supply of water for soaking utensils. The run-off goes down the drain. Dipper well flow rate shall be .3 gallon, or less, per minute.
5. **Ice Machines.** Ice machine are a factory-made assembly (not necessarily shipped in one package) consisting of a condensing unit and ice-making section operating as an integrated unit, with means for making and harvesting ice. It is an assembly that makes up to 4,000 lbs of ice per day at Standard Ratings Conditions, as defined in Section 5.2.1 of ARI Standard 810-2006, and may also include means for storing or dispensing ice, or both. Ice machines shall (1) be Energy Star qualified and (2) meet the current highest Tier specification set by the CEE’s “High Efficiency Specifications for Air-Cooled Ice Machines and any and all amendments thereto”.
6. **Clothes Washers.** “Commercial clothes washer” means a soft mount front-loading or soft mount top loading clothes washer with clothes container compartment no greater than 3.5 ft³ for horizontal axis clothes washers, or nor greater than 4.0 ft³ for vertical axis clothes washers, that is designed for use in (1) applications where the occupants of more than one household will be using it, such as multi-family housing common areas and coin laundries, or (2) other commercial applications. Commercial clothes washers shall meet the minimum Modified Energy Factor (MEF) and maximum Water Factor (WF) corresponding to the highest efficiency machines on the most recent CEE “High Efficiency Specification for Commercial, Family-Sized Clothes Washers and any and all amendments thereto”. As of January 1, 2007, the highest efficiency machines have a minimum MEF of 2.20 and a maximum WF of 4.5.
7. **Heating, Ventilation and Air Conditioning (HVAC) Equipment.** HVAC Equipment shall eliminate all once-through cooling, replacing with an air-cooled system or a cooling tower. For cooling towers, the following are recommended:
 - (a) flow submeters on make-up and bleed-off lines; submeters should, at a minimum, be capable of totaling the flow.

- (b) conductivity controllers that activate the blowdown valve for dissolved solids control.
- (c) overflow sensors on the overflow pipes.
- (d) baffles or drift eliminators.

All cooling towers shall be monitored and maintained in a manner consistent with applicable regulatory guidelines and manufacturers recommendations.

(5) Water Efficient Landscaping

A. After January 1, 2011, this chapter shall apply to all of the following:

1. New construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 1,000 square feet requiring a building or landscape permit, plan check or design review;
2. New construction and rehabilitated landscapes which are developer or contractor-installed in single-family and multi-family projects with a landscape area equal to or greater than 1,000 square feet requiring a building or landscape permit, plan check, or design review;
3. New construction and rehabilitated landscapes which are homeowner-provided in single family and multi-family residential projects with a total project landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review.

B. This chapter shall not apply to:

1. Registered local, state or federal historical sites;
2. Ecological restoration projects that do not require a permanent irrigation system;
3. Mined-land reclamation projects that do not require a permanent irrigation system; or
4. Plant collections, as part of botanical gardens and arboretums open to the public.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

- C. Landscape Design Plan. For each landscape project subject to this chapter applicants shall submit a landscape design plan in accordance with the following:
1. Amendments, Mulching and Soil Conditioning: A minimum of 8” of non-mechanically compacted soil shall be available for water absorption and root growth in planted areas.
 2. Incorporate compost or natural fertilizer into the soil to a minimum depth of 8” at a minimum rate of 6 cubic yards per 1000 square feet or per specific amendment recommendations from a soils laboratory report.
 3. A minimum 3” layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers or direct seeding applications.
 4. Plants.
 - (a) Selected plants shall not cause the Estimated Total Water Use to exceed the Maximum Applied Water Allowance (see calculation in Appendix A).
 - (b) Plants with similar water use needs shall be grouped together in distinct hydrozones and where irrigation is required, the distinct hydrozones shall be irrigated with separate valves.
 - (c) Low and moderate water use plants can be mixed, but the entire hydrozone will be classified as moderate water use for MAWA calculations.
 - (d) High water use plants shall not be mixed with low or moderate water use plants.
 - (e) All non-turf plants shall be selected, spaced, and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.
 - (f) Turf shall not be allowed in the following conditions: Slopes exceeding 10%, planting areas 8 feet wide or less, street medians, traffic islands, planter strips adjacent to hardscape, or bulbouts of any size.
 - (g) Invasive plants as listed by the Cal-IPC are prohibited. Weedy species, listed as invasive in California at (www.cal-ipc.org/ip/inventory/index.php) shall not be planted. Please check the species you might be thinking of planting against these lists, broken out by plant type. Exemptions may be granted on a case by case basis if District staff determine that the proposed location, species, size, number

of plants, and other cultural methods are not likely to cause harm to the watershed ecosystem.

- (h) Fire Safe Landscape Practices. The requirements in this chapter are intended to support, and be in compliance with, all local and State requirements related to Fire Safe Landscaping practices, including, but not limited to, requirements for Wildlife Urban Interface zones as specified by the local authority.
- (i) Identify any applicable rain harvesting, graywater, or catchment technologies (e.g. rain gardens, cisterns, etc.). Applicants are encouraged to employ alternative irrigation techniques as appropriate, and where permitted by law.
- (j) Identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Appropriate stormwater best management practices are encouraged in the landscape design.

5. Water Features.

- (a) Re-circulating water systems shall be used for water features.
- (b) Recycled water shall be used when available and approved for use onsite.

D. Irrigation Design Plan.

- 1. For each landscape project subject to this chapter applicants shall submit an irrigation design plan that is designed, and installed, to meet irrigation efficiency criteria as described in Appendix A (MAWA) and in accordance with the following:
 - (a) Irrigation systems with meters 1 ½” or greater require a high-flow sensor that can detect high flow conditions and have the capabilities to shut off the irrigation system.
 - (b) Isolation valves shall be installed at the point of connection and before each valve or valve manifold.
 - (c) High-efficiency controllers, weather-based, or other sensor based self-adjusting irrigation controllers shall be required.
 - (d) Rain sensors shall be installed for each irrigation controller.
 - (e) Pressure regulation and/or booster pumps shall be installed so that all components of the irrigation system operate at the manufacturer’s recommended optimal pressure.

- (f) Irrigation systems shall be designed to prevent runoff or overspray onto non-targeted areas, and wherever overhead irrigation is located directly adjacent to hardscape areas, where runoff water flows into the curb and gutter; all spray heads shall be setback a minimum of 24" from hardscape edges.
 - (g) Low volume or bubbler irrigation is required where plant height at maturity will affect the uniformity of a high volume overhead spray system.
 - (h) Minimum 24" setback of overhead spray irrigation is required where turf is directly adjacent to a continuous hardscape area where runoff water flows into the curb and gutter.
 - (i) Slopes greater than 15% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour (or lower if appropriate for site conditions as determined the District). This restriction may be modified if the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.
 - (j) A single valve shall not irrigate hydrozones that mix high water use plants with moderate or low water use plants.
 - (k) Trees shall be placed on separate irrigation valves except when planted in turf areas.
 - (l) Sprinkler heads, rotors and other emission devices on a valve shall have matched precipitation rates.
 - (m) For all irrigation systems, coverage to sustain plant material in a healthy condition and provide irrigation efficiency shall be required. Head-to-head coverage is required for high volume spray systems unless otherwise directed by the manufacturer's specifications.
 - (n) Swing joints or other pipe protection components are required on above-ground irrigation piping.
 - (o) Check valves shall be installed to prevent low-head drainage.
- E. Separate District landscape water service meters shall be required for all new landscapes, other than single-family and two-unit residential landscapes, for which the irrigated area is equal to or greater than 1,000 square feet.

1. A private submeter shall be required for all rehabilitated landscapes, other than single-family and two-unit residential landscapes, for which the irrigated landscape area is equal to or greater than 1,000 square feet.
 2. A private submeter shall be required for all points of connection on single-family and two-unit residential sites for which the irrigated landscape area is equal to or greater than 2,500 square feet.
- F. Documentation for Compliance. The following documentation is to be presented to the District at each of the three steps of review defined below. This documentation shall be required for compliance with this chapter. 13.02.021
1. STEP 1: DESIGN REVIEW. For those landscape projects that require Design Review, applicants shall submit the following documentation to the District:
 - (a) Completed Appendix A, Maximum Applied Water Allowance (MAWA)
 - (b) A landscape planting design plan that accurately and clearly identifies and depicts new and existing trees, shrubs, groundcovers, turf, and any other planting areas; plants by botanical name, common name, and plant factor; plant sizes and quantities; property lines, new and existing building footprints, streets, driveways, sidewalks and other hardscape features; pools, fountains, water features.
 - (c) An irrigation design plan drawn at the same scale as the planting plan that:
 - (i) Accurately and clearly identifies and depicts irrigation system point(s) of connection;
 - (ii) Accurately and clearly identifies and depicts irrigation system components, e.g. controller, pipe, remote-control valves, sprinklers, rain shut-off device, check valves, pressure regulating devices, backflow prevention devices, and other required devices
 - (iii) Includes the Hydrozone Table (See Appendix B).
 - (iv) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading design plan drawn at the same scale as the planting design plan shall be submitted as part of the Landscape Documentation Package. Items 1(a-e) below are required for all projects.

- (1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
 - (a) height of graded slopes;
 - (b) drainage patterns;
 - (c) pad elevations;
 - (d) finish grade; and
 - (e) stormwater retention improvements, if applicable.
- (2) It is highly recommended that, when site conditions allow, project applicants consider grading so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes.

The grading design plan shall contain the following statement: "I have complied with the criteria of this chapter and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional or contractor as authorized by law.

- (d) For homeowner-provided projects, a completed Homeowner's Irrigation Design Statement, Appendix B, which describes irrigation methods and design actions that will be employed to meet the irrigation specifications of this chapter, may be submitted in lieu of the irrigation design plan.
2. STEP 2: COMPLETION OF INSTALLATION. Upon installation and completion of the landscape, applicant shall submit Appendix D, the Certificate of Completion.

The certificate shall be accompanied by an irrigation audit that contains the following:

- (a) Operating pressure of the irrigation system.
- (b) Distribution uniformity of overhead irrigation.
- (c) Precipitation rate of overhead irrigation.
- (d) Report of any overspray or broken irrigation equipment.
- (e) Irrigation schedule including:
- (f) Plant establishment irrigation schedule.

- (i) Regular irrigation schedule by month including: plant type, root depth, soil type, slope factor, shade factor, irrigation interval (days per week), irrigation runtimes, number of start times per irrigation day, gallons per minute for each valve, precipitation rate, distribution uniformity and monthly estimated water use calculations.
 - (ii) An irrigation maintenance schedule timeline shall be attached to the certificate of completion that includes: Routine inspections, adjustment and repairs to the irrigation system, aerating and dethatching turf areas, replenishing mulch, fertilizing, pruning and weeding.
3. STEP 3: FINAL INSPECTION. A final inspection shall be performed by District staff to verify compliance with this chapter. Once the completion form is received, the District will conduct an inspection to check for proper installation and operation of all landscape and irrigation elements per the approved plan; however, the District reserves the right to perform site inspections at any time before, during, or after irrigation system and landscape installation and to require corrective measures if requirements of this chapter are not satisfied. If corrective measures are necessary, the District will set the water budget to zero until corrective measures are completed.

Advanced notice is required for all inspections. Inspections can be requested for either morning or afternoon during regular business hours. Final approval shall not be completed until the landscape inspection is approved. An extension of the approval process, to complete landscape and irrigation installation, shall be requested and shall be approved District staff.

(Ord. 421 §3(part), 2011).

(6) Drinking Water Served Upon Request Only.

By January 1, 2011, eating or drinking establishments, including but not limited to a restaurant, hotel, café, cafeteria, bar, or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.

(7) Commercial Lodging Establishments Must Provide Guests Option to Decline Daily Linen Services.

By January 1, 2011, hotels, motels and other commercial lodging establishments shall provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments shall prominently display notice of this option in each bathroom using clear and easily understood language.

(8) Grey Water Systems. This section is reserved for future provisions regarding grey water systems.

- (9) Rain Water Harvesting Systems. This section is reserved for future provisions regarding rain water harvesting systems.
- (10) Other Provisions. The General Manager will consider and may allow the substitution of design alternatives and innovation which may equally reduce water consumption for any of these requirements. The General Manager may accept documentation methods, water allowance determination, and landscape and irrigation design requirements of the State of California Model Water Efficient Landscape Ordinance instead of Chapters 14-30.040 and 14-30.050 of these requirements where it can be demonstrated that the State procedure will more effectively address the design requirements of the project.
- (11) Provisions For Appeal. The applicant or any affected person may appeal the final decision of staff regarding plan check or final inspection to the General Manager, The decision of the General Manager shall be final. An appeal regarding plan check shall be submitted prior to the installation of the landscape or it will be deemed to have been waived.
- (12) **Forms**. The following forms shall be submitted as described in this chapter: Appendix A, Maximum Applied Water Allowance; Appendix B, Homeowner's Irrigation Design Statement; Appendix C, Hydrozone Table; Appendix D, Certificate of Completion. (Ord. 421 §3(part), 2011; Ord. 414 §2, 2010)

Appendix A

Maximum Applied Water Allowance

The following calculations will help you determine your site specific water budget and establish a planting mix that will allow you to meet your water budget. Your Estimated Total Water Use must be less than your Maximum Applied Water Allowance.

1.) Maximum Applied Water Allowance (MAWA)

$$MAWA = (ET_o) (0.62)[(0.6 \times LA) + (0.4 \times SLA)]$$

Where:

ET_o = Annual Net Reference Evapotranspiration (inches)

0.6 = ET Adjustment Factor

LA = Landscaped Area (square feet)

0.62 = Conversion factor (to gallons per square foot)

SLA = Portion of the landscape area identified as Special Landscape Area (square feet)

0.4 = the additional ET adjustment factor for Special Landscape Area (1.0 - 0.6 = 0.4)

A.) Net Evapotranspiration Calculation

(Annual ET_o)

(Annual Rainfall)

x .25

=

(Effective Rainfall)

$$\text{Net Evapotranspiration Calculation} = \text{Annual ET}_o - \text{Effective Rainfall} =$$

B.) Adjusted Landscape Area Calculation

(Landscaped Area) x 0.6 Adjustment Factor

=

(Special Landscaped Area) x 0.4 Adjustment Factor

=

$$\text{Sum of Adjusted Landscape Area} =$$

$$MAWA = \text{Net Evapotranspiration Calculation} \times 0.62 \times \text{Sum of Adjusted Landscape Area} =$$

2.) Estimated Total Water Use (ETWU)

A.) Net Evapotranspiration Calculation

$$\text{Net Evapotranspiration Calculation} = \text{Annual ET}_o - \text{Effective Rainfall} =$$

B.) Adjusted Landscape Area Calculation

/

(Low water use plant sqft) x 0.3

=

(Moderate water use plant sqft) x 0.6

=

(High water use plant sqft) x 1.0

=

$$\text{Sum of Adjusted Landscape Area} =$$

$$ETWU = \text{Net Evapotranspiration Calculation} \times 0.62 \times \text{Sum of Adjusted Landscape Area} =$$

Irrigation Efficiency Factor		
Percent of total landscape Irrigated with Drip		
0-25%		0.71
26-50%		0.75
51-75%		0.80
76-100%		0.85

Appendix B

Homeowner's Irrigation Design Statement

The intent of this statement is to provide the homeowner with an alternative method for conceptualizing the irrigation design. A signed, written statement shall be submitted to the District as part of the design review process, and shall include the following elements:

- ☐ Accurately and clearly describes the types and locations of all irrigation system point(s) of connection;
- ☐ Accurately and clearly describes the types and locations of all irrigation system components by valve zone, including high-efficiency irrigation controller, pipe, valves, high and low volume irrigation devices, rain shut-off device, check valves, pressure regulating devices, backflow prevention devices, and all other irrigation devices required by the District.
- ☐ **A completed hydrozone table, Appendix C.**
- ☐ **A description of plant species irrigated in each valve zone by scientific name, water use of each plant species as High, Moderate, or Low water use according to WUCOLS (Water Use Classification of Landscape Species) , and plant height at maturity for each plant. Plant height is not necessary where drip or bubbler will be used.**
- ☐ **A statement signed by the homeowner that includes the following certifying language: "The irrigation system will be installed as described in this statement, and in compliance with the requirements of the District".**

Appendix C Hydrozone Table

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package. Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Landscape Area
Total				100%

Summary Hydrozone Table		
Hydrozone*	Area (Sq. Ft.)	% of Landscape Area
High Water Use		
Moderate Water Use		
Low Water Use		
	Total =	100%

***Hydrozone**

HW= High Water Use Plants
 MW=Moderate Water Use Plants
 LW=Low Water Use Plants

****Irrigation Method**

MS=Micro-spray
 S=Spray
 R=Rotor
 B=Bubbler
 D=Drip
 O=Other

Appendix D Certificate of Completion

This certificate is filled out by the project applicant, landscape architect and/or landscape contractor upon completion of the landscape project.

Part 1. Project Information Sheet

Date		
Project Name	Project Address	
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Property Owner or his/her designee:

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

Property Owner Signature

Date

Part 2. Landscape Architect and/or Landscape Contractor/Installer

Landscape Architect Name	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.	Telephone No.	
Company	Street Address	
City	State	Zip Code
Landscape Contractor/Installer Name	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.	Telephone No.	
Company	Street Address	
City	State	Zip Code

"I/we certify that the work has been completed in accordance with the ordinance and that the landscape planting and irrigation installation conform to the criteria and specifications of the approved Landscape Documentation Package. Additionally, the landscape audit and irrigation maintenance schedule have been completed as required and are attached to this certificate showing that the system meets the efficiency requirements used in the Estimated Total Water Use calculation"

Landscape Architect Signature

Date

Landscape Contractor Signature

Date

13.02.030 Water use reduction in dry periods. No customer of the district shall make, cause, use or permit the use of potable water from the district for residential, commercial, industrial, agricultural, governmental or any other purpose in a manner contrary to any provision of this section.

(1) Program to Reach a Ten Percent Water Use Reduction Goal (alert stage). When lake storage on April 1st in any year is below fifty thousand acre-feet and system modeling based on historic hydrologic data and use patterns indicates that a minimum reduction in use is required to assure a sufficient carry-over storage, the board may activate by resolution a voluntary use reduction program and should review its financial reserves to determine if a reduction in tier breaks is fiscally warranted to achieve ten percent savings in district's overall water use as follows:

(A) Consumer Percentage Curtailment. Every consumer shall eliminate water wastage in an effort to aid the district in achieving a ten percent reduction of the amount of potable water used by all consumers during the last year in which no restrictions in water use were required.

(B) Curtailment of Program. When lake storage on April 1st of any year is above fifty thousand acre-feet or when lake storage on or after January 1st is sufficiently above fifty thousand acre feet and projected demands will not reduce lake storage below fifty thousand acre-feet by the following April 1st, the requirements of this subsection shall be deactivated by resolution of the board.

(2) Twenty-five Percent Water Use Reduction Program. When lake storage on April 1st is below forty thousand acre-feet and system modeling based on historical hydrologic data and use patterns indicates a reduction in use is required to assure sufficient carry-over storage, the board may activate by resolution a mandatory use reduction program to achieve twenty-five percent savings in district's overall water use as follows:

(A) Consumer Use Reduction. Residential consumers, Billing Codes 1 through 5, shall use no more than the water use allocation assigned by the district based on an allotment per resident to aggregate a thirty-two percent reduction by all residential consumers. A resident is considered to be an individual who resides, or is expected to reside in the structure for a minimum of six months of the year.

Each nonresidential consumer, Billing Code 6 shall use no more than seventy-five percent, Billing Code 7 shall use no more than eighty percent, and Billing Code 8 shall use no more than fifty percent, of the annual water budget calculated by the district for said consumer pursuant to Chapter 13.03 of the district's code.

Every consumer shall eliminate water wastage and non-essential use of potable water from the district in an effort to aid the district in achieving a twenty-five percent reduction in the amount of water used by all consumers in the last year in which no restrictions in water use were required.

(B) Prohibited Nonessential Uses Applicable to All Consumers. It is unlawful for any person, firm, partnership, association, corporation or political entity to use potable water from the district contrary to the provisions of this subsection, or, if more restrictive, subsections (1), (2) and (3) of this section, or to use potable water for: refilling or as make-up water for decorative fountains or pools; irrigation between the hours of 11 AM and 7 PM; irrigation of new turf areas; washing of cars, boats, airplanes with hose without a shut-off nozzle; or serving water to restaurant patron except on request.

(C) Curtailment of Program. When lake storage on April 1st is above forty thousand acre-feet or when lake storage is sufficiently above forty thousand acre-feet and projected demands will not reduce lake storage below forty thousand acre-feet by the following April 1st,

the requirements of this subsection shall be deactivated by resolution of the board. (Ord. 387 §1, 1999; Ord. 376 §8, 1997; Ord. 325 §1, 1991; Ord. 323 §1, 1991; Ord. 316 §2 (part), 1991).

13.02.040 Calculation of allowable water use. When the requirements of Section 13.02.030 (2) are in effect, consumers in Billing Codes 6, 7 and 8 will reduce their use by the appropriate percentage of their water budget. (Ord. 387 §1, 1999; Ord. 376 §9, 1997; Ord. 316 §2 (part), 1991).

13.02.050 Variances. The general manager of the district may grant variances for use of water otherwise prohibited by this chapter if the general manager finds and determines that:

(1) The applicant, if requesting a variance for a nonresidential service (Billing Codes 6, 7 and 8), has agreed to abide by an annual water budget calculated pursuant to Chapter 13.03 of this title; and

(2) The applicant has agreed to adjust his water usage by complying with Section 11.04.080 of this code where determined to be applicable by district staff; and

(3) Failure to do so would cause an unnecessary and undue hardship on applicant or the public, including but not limited to, adverse economic impacts, such as loss of production or jobs; or

(4) Failure to do so would cause an emergency condition affecting the health, sanitation, fire protection or safety of the applicant or the public. (Ord. 387 §1, 1999; Ord. 316 §2 (part), 1991).

13.02.060 Enforcement.

(1) Any customer violating the regulations and restrictions on water use set forth in this chapter shall receive a written warning for the first such violation.

(2) Upon a second violation, the following enforcement process shall be implemented by the District:

(A) The customer shall receive a written warning describing the nature of the second violation and the required corrective action(s).

(B) Upon receipt of the written warning for the second violation, the customer shall have a 15 calendar day period in which to implement the corrective action(s) and shall notify the District when the corrective actions have been completed.

(C) District staff will conduct a site visit to verify that the corrective action(s) are complete and satisfy the requirements in this chapter.

(3) If the customer fails to complete the required corrective action(s), and notify the District within the 15 calendar day period, the District shall issue a Notice of Violation by certified mail or personal delivery at least 10 calendar days before imposing a \$250 fine on the customer's water bill. The notice shall inform the customer that he/she may appeal the imposition of the fine to the District's General Manager by filing a written appeal within 7 calendar days of the date of the letter. Any Notice of Violation not timely appealed will be final. Upon receipt of a timely appeal, a hearing on the appeal will be scheduled and the District will mail notice of this date to the customer at least 10 calendar days before the hearing. The General Manager's decision is final. Pending receipt of a written appeal or pending hearing pursuant to an appeal, the District may take appropriate steps to prevent unauthorized use of water as appropriate to prevent waste. This notice and hearing procedure shall not apply to those water waste situations charged as misdemeanors.

(4) Failure by the customer to pay the fine and correct the violation, may cause the District to install a flow restrictor to be installed in the service. If a flow restrictor is placed, the cost of installation and removal specified in Section 11.32.020 of this code shall be paid by the violator.

(5) Any willful violation occurring subsequent to the issuance of the second written warning may constitute a misdemeanor and may be referred to the Marin County district attorney's office for prosecution pursuant to Section 13.02.080.

(6) The district may also disconnect the water service in accordance with Section 11.28.030 of this code. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the board of directors under the provisions of Section 11.08.130(2) of this code. (Ord. 421 §4, 2011; Ord. 387 §1, 1999; Ord. 316 §2 (part), 1991).

13.02.065 Unauthorized water use. Use of water without having made application to the district for water service or use of any district water not metered pursuant to such application is prohibited pursuant to this chapter, and in addition to the penalties contained in Section 13.02.080, violators will be subject to the charges for use of such water set forth in Section 6.01.080 of this code. (Ord. 316 §2 (part), 1991).

13.02.070 Further Prohibitions. It is unlawful for any person, firm, partnership, association, corporation or political entity to remove, replace, alter or damage any water meter or components thereof, including but not limited to the meter face, its dials or other water usage indicators and any flow restricting device installed pursuant to Section 13.02.060. (Ord. 316 §2 (part), 1991).

13.02.080 Penalty for violations. Except as provided in Section 13.02.060, for the first and second violations any person, firm, partnership, association, corporation or political entity violating or causing or permitting the violation of any of the provisions of this chapter or providing false information to the district in response to district's requests for information needed by the district to calculate consumer water allotments shall be guilty of a misdemeanor punishable by imprisonment in the county jail for not more than thirty days or by a fine not exceeding one thousand dollars or both. Each separate day or portion thereof in which any violation occurs or continues without a good faith effort by the responsible party to correct the violation shall constitute a separate offense and, upon conviction thereof, shall be separately punishable. (Ord. 316 §2 (part), 1991).

13.02.090 Appeals. Variances from the requirements of this chapter may be granted by the board of directors only after denial of a variance request by the general manager. Appeals of variance request denials shall be made in writing to the secretary of the board at least two weeks prior to the meeting at which they will be heard. Upon granting any appeal, the board of directors may impose any conditions it determines to be just and proper. Variances granted by the board of directors shall be prepared in writing, the original to be kept on file with the district and a copy to be furnished to the applicant. The board of directors may require it to be recorded at applicant's expense. (Ord. 316 §2 (part), 1991).

13.02.100 Remedies/cumulative. The remedies available to the district to enforce this chapter are in addition to any other remedies available under the district's code, or any state statutes or regulations, and do not replace or supplant any other remedy, but are cumulative. (Ord. 316 §2 (part), 1991).

13.02.110 Chapter controlling. The provisions of this chapter shall prevail and control in the event of any inconsistency between this chapter and any other rule, regulation, ordinance or code of this district. (Ord. 316 §2 (part), 1991).

Chapter 13.03

WATER BUDGETS AND RELATED CONSERVATION MEASURES*

Sections:

13.03.010	Declaration of purpose.
13.03.020	Basis for determination of water budget.
13.03.030	Water budgets, when required.
13.03.031	Increasing a Service's Water Budget.
13.03.040	Efficient plumbing fixtures.
13.03.050	Variances from Section 13.13.040.
13.03.060	Appeals.
13.03.070	Penalty for violations.
13.03.080	Recordation of notice.
13.03.090	Cost of enforcement.
13.03.100	Chapter controlling.
13.03.110	Remedies/cumulative.
13 03 120	Flow restrictors.

13.03.010 Declaration of purpose. The purpose of this chapter is to specify the terms and conditions under which water budgets will be required and to specify when consumers will be required to retrofit water using fixtures with low-flow or ultra-low-flow fixtures, all for the purpose of permanently reducing the per capita consumption of water by the district's customers, thereby reducing the hardship on the district's consumers resulting from over-subscription of the district's water supplies which has increased the susceptibility of the district's supply to shortfalls in dry years. (Ord. 316 §2 (part), 1991).

13.03.020 Basis for determination of water budget. The initial annual water budget for each existing service which is not a single-family residential or multi-unit residential structure is determined by the district assigning the amount of the water entitlement based on the purchased water entitlement, calculated consumption or designated annual consumption as defined in Section 11.08.180 of this code. The water budget for each service may be adjusted below the water entitlement as set forth in Section 11.08.035. All customers except residential customers exceeding their annual water entitlements are subject to terms and conditions of Section 11.08.030 of this code regarding changing character and/or increasing use of water. (Ord. 376 §9, 1997; Ord. 340 §1 (part), 1992; Ord. 316 §2 (part), 1991).

13.03.030 Water budgets when required. Services must conform to the annual water budget calculated by the district for each property receiving water service as follows:
(1) New services: immediately upon connection.

* Prior ordinance history: Ords. 295, 301, 309, 310 and 314.

(2) Existing services: as a condition of receipt of a variance or as part of the calculation of allowable use pursuant to Section 13.02.040 of this title, or upon receipt of notification from district that an annual water budget has been prepared by district staff. (Ord. 316 §2 (part), 1991).

13.03.031 Increasing a Service's Water Budget. Requests to increase a service's Water Budget, as a result of an entitlement purchase or transfer, or where the service's water budget is less than the service's water entitlement shall meet the following requirements:

(1) Mixed-use Non-Residential Services:

(A) Interior Fixtures. Interior Fixtures shall meet conditions as stated in District Code Section 13.02.02.

(B) Irrigated Landscape Areas. A minimum 3" layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas or creeping or rooting groundcovers. Rain sensors shall be installed for each irrigation controller. Irrigation system shall be adjusted to minimize runoff or overspray onto non-targeted areas.

(2) Dedicated Irrigation Services. The following items shall be completed by the applicant according to the requirements in District Code Section 13.02.02:

- A landscape water budget calculating both MAWA & ETWU requirements.
- A landscape hydrozone table.
- A minimum 3" layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas or creeping or rooting groundcovers.
- Rain sensors shall be installed for each irrigation controller.
- Irrigation system shall be adjusted to minimize runoff or overspray onto non-targeted areas.
- Backflow prevention equipment shall be installed and tested as required by the District.

Upon determining the service meets the requirements for both indoor and outdoor water use, and based on the current water efficiency standards established by the District, the service may be eligible to increase the annual water budget as calculated by staff, but in no case shall the budget exceed the services entitlement. Requests to increase a service's water budget may be made once per calendar year. (Ord. 421 §5, 2011).

13.03.040 Efficient plumbing fixtures. Any plumbing fixture in any existing service which is replaced, added or moved shall conform to the criteria contained in District Code Section 13.02.021. (Ord. 414 §3, 2010; Ord. 316 §2 (part), 1991).

13.03.050 Variances from Section 13.13.040. The general manager may, in his discretion, exempt services from the requirements of Section 13.03.040 of this chapter, or impose reasonable conditions in lieu of compliance therewith, if he determines that any of the following conditions apply:

(1) Hardship. The general manager may grant an extension for hardship where the requirements of Section 13.03.040 cause an unnecessary and undue substantial hardship upon the owner, or purchaser of the facility or the public. Substantial hardship may include, but is not limited to:

(A) Plumbing in an existing facility which does not match the connections with efficient plumbing fixtures and would, therefore, require partial replumbing of the structures;

(B) Unavailability of efficient plumbing fixtures to match a well-defined historic architectural style in a locally, state or federally recognized building of historic significance, fitted with authentic plumbing fixtures;

(C) Any project exempted pursuant to subsection (1) of this section shall be required to have installed toilets using a maximum of 3.5 gallons per flush and three gallons per minute showerheads if not already so provided.

(2) Emergency. The general manager may grant an exemption for emergency purposes when the requirements of Section 13.03.040 would create a condition affecting the health, sanitation, fire protection or safety of the facility owner or the public.(Ord. 316 §2 (part), 1991)

13.03.060 Appeals. Except for variances from Section 13.03.040, variances from the requirements of this chapter may be granted by the board of directors only after denial of a variance request by the general manager. Appeals of variance request denials shall be made in writing to the secretary of the board at least two weeks prior to the meeting at which they will be heard. Upon granting any appeal, the board of directors may impose any conditions it determines to be just and proper. Variances granted by the board of directors shall be prepared in writing, the original to be kept on file with the district and a copy to be furnished to the applicant. The board of directors may require it to be recorded at applicant's expense. (Ord. 316 §2 (part), 1991).

13.03.070 Penalty for violations. Any person, firm, partnership, association, corporation or political entity violating or causing or permitting the violation of any of the provisions of this chapter shall be guilty of a misdemeanor punishable by imprisonment in the county jail for not more than thirty days or by a fine not exceeding one thousand dollars or both. Each separate day or portion thereof in which any violation occurs or continues without a good faith effort by the responsible party to correct the violation shall constitute a separate offense and, upon conviction thereof, shall be separately punishable. (Ord. 316 §2 (part), 1991).

13.03.080 Recordation of notice. Whenever the general manager determines that low water-use plumbing fixtures required by Section 13.03.040 have not been installed or have been removed since initial installation, the general manager may record a notice of violation with the office of the county recorder. The owners of the property as revealed by the assessment roll on which the violation is situated and any other person responsible for the violation shall be notified of the recordation, if their address is known. The owner of record shall have ninety days to take corrective action. Failure to take corrective action within ninety days shall constitute a violation of this code. The general manager shall cause a notice of correction to be recorded at such time as the property owner has established full compliance with the provisions of this chapter. (Ord. 316 §2 (part), 1991).

13.03.090 Cost of enforcement. Any person, firm or corporation or upon whose property a notice of violation has been recorded shall, if the condition creating the nuisance or constituting the violation is not corrected within thirty days, be liable for the cost of abatement and cost of correction which shall include, but not be limited to, cost of investigation, court costs, attorney fees and costs of monitoring compliance. (Ord. 316 §2 (part), 1991).

13.03.100 Chapter controlling. The provisions of this chapter shall prevail and control in the event of any inconsistency between this chapter and any other rule, regulation, ordinance or code of this district. (Ord. 316 §2 (part), 1991).

13.03.110 Remedies/cumulative. The remedies available to the district to enforce this chapter are in addition to any other remedies available under the district's rules and regulations, or any other state statutes or regulations, and do not replace or supplant any other remedy, but are cumulative. (Ord. 316 §2 (part), 1991).

13.03.120 Flow restrictors. In addition to the penalties provided for in Section 13.03.070 of this chapter, district may install a flow restrictor in the service of a customer who violates the provisions of this chapter if, after receiving notice from district that he is in violation, he does not rectify the violation within a reasonable time specified by the district not to exceed sixty days. (Ord. 316 §2 (part), 1991).

MARIN MUNICIPAL WATER DISTRICT

ORDINANCE NO. 429

AN ORDINANCE AMENDING TITLE 13 OF THE MARIN MUNICIPAL WATER DISTRICT CODE ADDING ANOTHER ELEMENT OF THE DISTRICT'S WATER CONSERVATION PROGRAM PURSUANT TO WATER CODE SECTION 375 BY ADDING SECTION 13.02021(2) O-1 "DEFINITIONS" TO INCLUDE "GRAY WATER" AND AMENDING CHAPTER 13.02.021(8) ENTITLED "GRAY WATER SYSTEMS" OF THE DISTRICT CODE

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE MARIN MUNICIPAL WATER DISTRICT AS FOLLOWS:

SECTION 1. Purpose: The purpose of this ordinance is to adopt another element of the District's water conservation program pursuant to Water Code Section 375. The purpose of this ordinance is to require applicants for new water service and applicants requesting an enlarged water service for substantial residential or commercial remodels to install a gray water recycling system to reuse the maximum practicable amount of gray water on site. The Board of Directors views this conservation program as a fundamental and necessary step in its on-going efforts to reduce overall water use District-wide.

SECTION 2. Ordinance Amendments:

A. Section 13.02.021 (2) O-1 is added to Section 13.02.021 (2) entitled "Definitions" to read as follows:

O-1.Gray Water: Untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Gray water" includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

B. Section 13.02.021(8) is amended to read as follows:

(8) Gray Water Systems. All applicants requesting a water service for a new residential or commercial structure which requires the installation of a new service, and all applicants requesting an enlarged water service for a "substantial remodel" to an existing residential or commercial structure as that term is defined under Marin County Code Section 19.04.063 or any successor ordinance shall install a gray water recycling system to reuse the maximum practicable amount of gray water on site. Installation and operation of all gray water systems shall comply with all rules and regulations of the District, the local jurisdiction having zoning authority over the parcel and the California Plumbing and CALGreen Code.

SECTION 3. Findings of Necessity: The Board of Directors, after considering all of the information and testimony presented at its November 3 , 2015 meeting and all of the comments and protests lodged in relation thereto and in the other portions of the record of this rate-making, finds as follows:

- A. Water is a finite and precious resource.
- B. Currently, California is in its fourth year of drought.
- C. On January 17, 2014, Governor Jerry Brown issued a drought state of emergency declaration in response to record-low water levels in California's rivers and reservoirs as well as an abnormally low snowpack. On April 1, 2015, Governor Brown issued an Executive Order calling for statewide mandatory water reductions of up to 25%.
- D. On May 5, 2015, the State Water Resources Control Board approved regulations, based on Governor Brown's Executive Order, mandating the District to reduce its water consumption by 20% percent for June 2015 through February 2016 as compared to the same months in 2013.
- E. California Plumbing Code Chapter 16 entitled "Alternative Water Sources for Nonpotable Application" contains the current state-wide requirements for the construction, alteration, discharge, use and repair of alternative water source systems", including gray water.
- F. The provisions of Chapter 16 of the state Plumbing Code are intended to, among other things, to conserve water by facilitating greater reuse of laundry, shower, lavatory, and similar sources of discharge for irrigation and/or indoor use.
- G. Requiring the installation of gray water reuse standards will improve the effectiveness of the District's efficiency standards for interior and exterior water use.
- H. Conditioning the approval for a new water service or enlargement of an existing service based upon a substantial remodel as defined above on an applicant's installation of gray water systems will encourage water re-use and preserve the water supply.
- I. Careful water management requires the implementation of a host of water conservation at all times, not just in times of drought.
- J. Article X Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use to the fullest extent of which they are capable and that the waste, unreasonable use or unreasonable method of use of water be prevented, and that 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.
- K. California Water Codes Section 375 authorized water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies.
- L. The adoption and enforcement of the water conservation program contained in this

ordinance is necessary to manage and conserve the District's water supply and ensure the sustainability and reliability of the same while preventing water waste.

- M. The Board finds this ordinance is exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with Section 15061(b) (3) of the CEQA Guidelines.
- N. After more than twenty years of innovative and aggressive conservation efforts, more needs to be accomplished. The water conservation program required by this ordinance is necessary to conserve additional water for beneficial use and to preserve the District's water supply.

SECTION 4. Environmental Determination: This project has been reviewed for compliance with the California Environmental Quality Act and qualifies for an exemption under the General Rule section 15061(b) (3) because it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment.

SECTION 5. Severability: If any section, subsection, sentence, clause, phrase, portion or part of this ordinance is for any reason held to be invalid or unconstitutional by any court of competent jurisdiction, such section shall not affect the validity of the remaining portions of this code. The Board of Directors hereby declares that it would have adopted this ordinance and each section, subsection, sentence, clause, phrase, part or portion thereof, irrespective of the fact that any one or more sections subsections, clauses, phrases, parts or portions be declared invalid or unconstitutional.

SECTION 6. Effective Date: This ordinance shall be effective 90 days from the date of its adoption.

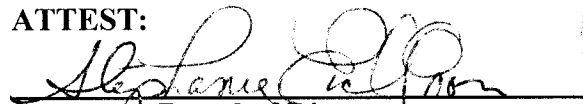
PASSED AND ADOPTED this 3rd day of November 2015, by the following vote of the Board:

AYES: Directors Bragman, Gibson, Quintero and Russell

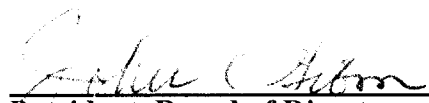
NOES: None

ABSENT: Director Koehler (recusal)

ATTEST:



Secretary, Board of Directors



President, Board of Directors

Appendix J: Resolution to Adopt UWMP and WSCP

PLACEHOLDER