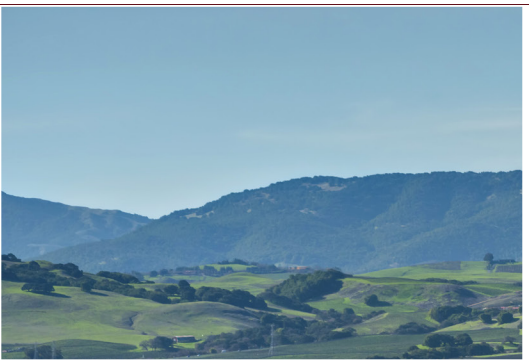
June 2021

2020 Urban Water Management Plan

for City of Sonoma






SEAL OF THE CITY OF SONOMA · FOUNDED 1823 · CALIFORNIA

eki environment & water

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ABBREVIATIONS

ABAG	Association of Bay Area Governments
AC	asbestos-cement
AF	acre-feet
AFY	acre-feet per year
AMI	Advanced Metering Infrastructure
ASR	aquifer storage and recovery
AWE	Alliance for Water Efficiency
AWWA	American Water Works Association
BAP	Basin Advisory Panel
BMP	Best Management Practice
CA	California
CALGreen	California Green Building Standards Code
CCR	California Code of Regulations
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
cfs	cubic feet
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information System
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DDW	Division of Drinking Water
DI	ductile iron
DIY	Do-It-Yourself
DMM	demand management measure
DOF	Department of Finance
DRA	Drought Risk Assessment
DWR	Department of Water Resources
EIR	Environmental Impact Report
ETo	reference evapotranspiration
ft	foot
ft msl	feet above mean sea level
GMP	Groundwater Management Plan
GPCD	gallons per capita per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HMP	Hazard Mitigation Plan
kWh/AF	kilowatt hours per acre-foot
LHMP	Local Hazard Mitigation Plan
MCLs	Maximum Contaminant Levels
MFR	Multi-Family Residential
MG	million gallon
mgd	million gallons per day
MMWD	Marin Municipal Water District
MOU	Memorandum of Understanding

NMFS	National Marine Fisheries Service
NMWD	North Marin Water District
OSA	outside service area
PE	polyethylene
PVC	polyvinylchloride
PWS	Public Water System
RUWMP	Regional Urban Water Management Plan
SB x7-7	Water Conservation Act of 2009
SCWA	Sonoma County Water Agency
SFR	Single Family Residential
SGMA	Sustainable Groundwater Management Act
SMSWP	Sonoma-Marin Saving Water Partnership
SOI	Sphere of Influence
STL	Steel
SVCSD	Sonoma Valley County Sanitation District
SWRCB	State Water Resources Control Board
TAC	the SCWA Technical Advisory Committee
UGB	Urban Growth Boundary
USACE	U.S Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VOMWD	Valley of the Moon Water District
WAC	Water Advisory Committee
WR P1	Water Reliability Policy 1
WSCP	Water Shortage Contingency Plan
WUE	with water use efficiency
WWTP	Wastewater Treatment Plant

1. INTRODUCTION

☑ ***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 discusses 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 *Urban Water Management Plan Guidebook 2020* (UWMP Guidebook 2020).[1]

1.1 Background and Purpose

This UWMP addresses the City of Sonoma (City) water system. Most of the City's water supply comes from Sonoma County Water Agency (SCWA or Sonoma Water), which provides surface water from the Russian River, supplemented by groundwater from eight groundwater wells, six of which are currently active. The City delivers water to residential, commercial / institutional, and landscape irrigation customers.

This UWMP is a foundational document and source of information about the City's historical and projected water demands, water supplies, supply reliability and potential vulnerabilities, water shortage contingency planning, and demand management programs. The City's last UWMP was completed in 2016, referred to herein as the "2015 UWMP." This Plan is an update to the 2015 UWMP and carries forward information from that plan that remains current and is relevant to this Plan and provides additional information as required by amendments to the UWMP Act (CWC §10610 – 10657). Although this Plan is an update to the 2015 UWMP, it was developed to be a self-contained, stand-alone document.

1.2 Urban Water Management Planning and the California Water Code

The UWMP Act requires urban water suppliers to prepare an UWMP every five years and to submit this plan to the Department of Water Resources (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 annually are required to prepare an 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 as a result of the governor's call for a statewide 20 percent reduction in urban water use by 2020, referred to as "20x2020," the Water Conservation Act of 2009, and "SB X7-7." This amendment required urban retail water suppliers to establish water use targets for 2015 and 2020 that would result in statewide

[1] The UWMP Guidebook 2020 is available at: https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans

water savings of 20 percent by 2020. Beginning in 2016, urban retail water suppliers were required to comply with the water conservation requirements in SB X7-7 in order to be eligible for state water grants or loans. Chapter 5 of this plan contains the data and calculations used to determine compliance with these requirements.

A subsequent substantial revision to the UWMP Act was made in 2018 through a pair of bills (i.e., Assembly Bill 1668 and Senate Bill 606), referred to as "Making Water Conservation a California Way of Life" or the "2018 Water Conservation Legislation." These changes include significant revisions and additions to the required content for an UWMP and its associated Water Shortage Contingency Plan (WSCP). As applicable, the City's 2020 UWMP reflects the following significant revisions to the UWMP Act that have been made since 2015.

- ***Five Consecutive Dry-Year Water Reliability Assessment***. The Legislature modified the dry-year water reliability planning from a "multiyear" time period to a "drought lasting five consecutive water years."
- ***Drought Risk Assessment***. The Drought Risk Assessment (DRA) requires a supplier to assess water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years.
- ***Energy Intensity Analysis***. UWMPs are now required to include water system energy usage information that can be readily obtained.
- ***Seismic Risk***. The Water Code now requires suppliers to specifically address seismic risk to various water system facilities and to have a mitigation plan, and for this to be described in their WSCPs.
- ***Water Shortage Contingency Plan***. In 2018, the UWMP Act was modified to require a WSCP with specific elements, including developing procedures to perform an annual water supply and demand assessment.
- ***Groundwater Supplies Coordination***. The Water Code now requires that the 2020 UWMPs for suppliers that utilize groundwater as a supply source are consistent with Groundwater Sustainability Plans, in areas where those plans have been completed by the Groundwater Sustainability Agencies.
- ***Lay Description***. The Legislature included a new statutory requirement for suppliers to include a lay description of the fundamental determinations of the UWMP, especially regarding water service reliability, challenges ahead, and strategies for managing reliability risks.

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

1.3 Relationship to Other Planning Efforts

This Plan provides information specific to water management and planning by the City. 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 of Sonoma and County of Sonoma General Plans, Water Master Plans, Groundwater Management Plans, Groundwater Sustainability Plans, and others.

This Plan is informed by and helps to inform these other planning efforts. In particular, this Plan utilizes information contained in City of Sonoma and County of Sonoma General Plans and local and regional water resource plans to the extent data from these plans are applicable and available.

1.4 Plan Organization

The organization of this Plan follows the same sequence as outlined in the UWMP Guidebook 2020.

Chapter 1 - Introduction

Chapter 2 - Plan Preparation

Chapter 3 - System Description

Chapter 4 - Water Use Characterization

Chapter 5 - SBX7-7 Baselines, Targets, and 2020 Compliance

Chapter 6 - Water Supply Characterization

Chapter 7 - Water Service Reliability and Drought Risk Assessment

Chapter 8 - Water Shortage Contingency Plan

Chapter 9 - Demand Management Measures

Chapter 10 - Plan Adoption and Submittal

Chapter 11 - References

In addition to these eleven chapters, this Plan includes a number of 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.

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

Although not required by the UWMP Act, in the UWMP Guidebook 2020, 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—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 Sacramento-San Joaquin Delta (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, Title 23, Section 5003).

The City's primary source of water supply is imported water from the SCWA Russian River Project, supplemented by local groundwater, and therefore the City does not receive water or plan to receive water from a "covered action" under the Delta Plan. As such, this requirement is not applicable.

1.6 Lay Description

☑ ***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 or Plan) is prepared for the City of Sonoma (also referred to as the City), which serves drinking water to a population of approximately 11,725 in the City of Sonoma city limits, as well as the Sonoma County jurisdictional area to the east of the city limits, and pocket areas that have outside service area (OSA) agreements with the City along Thornsberry Road, Lovall Valley Road, East Napa Road, East MacArthur Street, and Denmark Street. The City is located approximately 50 miles northeast of San Francisco at the southern end of Sonoma County. This UWMP serves as a foundational planning document and includes descriptions of historical and projected water demands, and water supplies and reliability over a 20-year planning horizon. This document also describes the actions the City is taking to promote water conservation, both by the City itself 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 and amendments (Division 6 Part 2.6 of the California Water Code [CWC] §§10610 – 10656). Past plans developed for the City are available on the California Department of Water Resources (DWR) Water Use Efficiency Data Portal website: https://wuedata.water.ca.gov/. This document includes 11 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 - Plan 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., Valley of the Moon Water District (VOMWD), Sonoma County, SCWA, Sonoma Valley Groundwater Sustainability Agency [GSA], and Santa Rosa Plain GSA), and the public.

Chapter 3 - System Description

This chapter provides a description of the City's water system and the service area, including information related to the climate, population, and demographics. The City has a population of approximately 11,725 and has a moderate climate characterized by dry and warm summers and mild winters. The majority of precipitation falls between November through March, averaging 29 inches of rainfall annually.

Chapter 4 - Water Use Characterization

This chapter provides a description and quantifies the City's current and projected demands through the year 2045. The City provides drinking water (also referred to as "potable 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. Water demand within the City was 2,174 acre-feet per year (AFY) on average between 2016 and 2020. Taking into account historical water use, expected population increase and other growth, climatic variability, and other assumptions, water demand within the City is projected to increase to 2,283 AFY by 2045, a change of approximately 5 percent compared to the 2016-2020 average.

Chapter 5 - SBX7-7 Baselines, Targets, and 2020 Compliance

In this chapter, the City 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 City is in compliance with its 2020 water use target of 180 gallons per capita per day (GPCD), having reduced its water use in 2020 to 166 GPCD. The City is also a member of a "Regional Alliance" for purposes of SB X7-7 compliance. The Regional Alliance's 2020 water use is 113 GPCD, which is in compliance with and below its 2020 target of 129 GPCD.

Chapter 6 - Water Supply Characterization

This chapter presents an analysis of the City'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 City's water supplies, estimate the volume of available supplies over the 20-year planning horizon, and assess the sufficiency of the City's supplies to meet projected demands under "normal" hydrologic conditions.

The majority of the water supply for the City is purchased treated water from the Sonoma County Water Agency (SCWA) Russian River Project. The Russian River, Lake Mendocino, and Lake Sonoma are primary sources of water for the Russian River Project. The SCWA supply also includes a relatively small amount of groundwater from groundwater supply wells located in the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin [DWR Basin 2-002] (SCWA, 2016). Approximately 9.6 percent of the City's supply in 2020 is local groundwater, which is pumped by City wells located in the Sonoma Valley Subbasin of the Napa-Sonoma Valley Basin [DWR Basin 2-002.02]. Water supply for the City is expected to be sufficient to support the City's projected water demand through 2045.

Calculation and reporting of water system energy intensity is a new requirement for the 2020 UWMPs. Energy intensity is defined as the net energy used for water treatment, conveyance, and distribution for all water entering the City's distribution system and does not include the energy used to convey or treat wastewater. The energy intensity for the City is estimated to be 98 kilowatt hours per acre-foot of water (kWh/AF).

Chapter 7 - Water Service Reliability and Drought Risk Assessment

This chapter assesses the reliability of the City's water supplies, with a specific focus on potential constraints such as 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 City's supply (such as drought conditions) to support the City's planning efforts to ensure that its customers are well served. Water service reliability is assessed during normal, single dry-year, and multiple dry-year hydrologic conditions. Based on this analysis, the City 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 City's customers, as water quality is routinely monitored and the City 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 Plan

This chapter describes the Water Shortage Contingency Plan (WSCP) for the City. 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 Department of Water Resources (DWR) requirements, the WSCP includes six levels to address shortage conditions ranging from up to 10 percent to greater than 50 percent shortage.

Chapter 9 - Demand Management Measures

This chapter includes descriptions of past and planned conservation programs that City implements 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 City has developed a suite of conservation programs and policies, which address each DMM category.

Chapter 10 - Plan Adoption and Submittal

This chapter provides information on a public hearing, the adoption process for the UWMP, the adopted UWMP submittal process, plan implementation, and the process for amending the adopted UWMP. Prior to adopting the Plan, the City held a formal public hearing to present information on its City UWMP on 7 June 2021, 6:00 PM. This UWMP was submitted to DWR within 30 days of adoption and by the 1 July 2021 deadline.

Chapter 11 - References

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

2. PLAN PREPARATION

This chapter discusses the type of Urban Water Management Plan (UWMP or Plan) the City of Sonoma (City) has prepared and includes information that will apply throughout the Plan. Coordination and outreach during the development of the Plan is also discussed.

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 H**. 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 2020 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 Plan

☑ ***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 § 10620***

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.

☑ ***CWC § 10621 (f)(1)***

Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

☑ ***CWC § 10644 (a)(2)***

The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department.

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 City 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 City's PWS identification number. 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 an UWMP.

As shown in **Table 2-1**, the City served 4,505 connections in 2020 and is therefore subject to the requirements of the UWMP Act.

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

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
CA4910012	City of Sonoma	4,505	2,174
	TOTAL	4,505	2,174
NOTES: (a) Volumes are in units of AF.			

The City's 2020 UWMP describes how the current and future water resources and demands within the City's service area will be managed to provide an adequate and reliable water supply.

As indicated in **Table 2-2**, the City's 2020 UWMP has been prepared individually for the City in general accordance with the format suggested in DWR's *Urban Water Management Plan Guidebook 2020,* dated March 2021 (Guidebook; DWR, 2021). Some sections of the outline presented in the Guidebook have been combined or arranged in a different order, but all the information requested in the UWMP Guidebook and Act is provided within this document. Other sources for the information contained herein are provided in the references section of the document.

Per the Guidebook, the UWMP preparer is 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.**

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

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance *if applicable*
X	Individual UWMP		
		Water Supplier is also a member of a RUWMP	
	X	Water Supplier is also a member of a Regional Alliance	North Marin-Sonoma Alliance
	Regional Urban Water Management Plan (RUWMP)		
NOTES: The City participates in a regional alliance (North Marin-Sonoma Regional Alliance) for the purposes of SBx7-7 compliance reporting. However, this UWMP has been prepared individually for the City.			

2.2 Coordination and Outreach

Coordination with other water suppliers, cities, counties, and other community organizations in the region is an important part of preparing a UWMP and Water Shortage Contingency Plan (WSCP). This section identifies the agencies and organizations City sought to coordinate with during preparation of this Plan.

2.2.1 Wholesaler 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 City meets regularly with other water purveyors to discuss water supply and demand planning. In particular, the City meets at least monthly with its water wholesaler, the Sonoma County Water Agency (SCWA), and with other Water Contractors who purchase water from the SCWA. These monthly meetings occur through the City's participation in the SCWA Technical Advisory Committee (TAC). The primary mission of the TAC is to provide input and guidance to the SCWA regarding technical issues that may have an impact on the Water Contractors (i.e., UWMP coordination, capital projects, operational changes, etc.). Additionally, the

City participates in quarterly meetings of the Water Advisory Committee (WAC). The WAC's objectives are to advise the SCWA's Board of Directors on policy and fiscal matters affecting the Water Contractors. The City's participation in the TAC and WAC has been instrumental in coordinating water supply and demand analyses for the preparation of this Urban Water Management Plan (UWMP or Plan). The City meets more often with the Valley of the Moon Water District, also a Water Contractor to the SCWA, because of its shared delivery system through the SCWA aqueduct system, which transports water from the Russian River to Sonoma Valley.

The City's water supply primarily comes from water purchased from the SCWA. The City, along with seven other Water Contractors, has a water supply agreement with the SCWA for the purchase of Russian River water commonly referred to as the Restructured Water Supply Agreement. As indicated in **Table 2-3,** the City has provided demand projections through 2045 to the SCWA.

Table 2-3 Water Supplier Information Exchange (DWR Table 2-4)

The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
Sonoma County Water Agency
NOTES:

As discussed in Section 4.2, the City's projected water demands were developed as part of 2020 planning effort that was implemented through the Sonoma-Marin Saving Water Partnership (SMSWP) (i.e., the *2020 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update* included as **Appendix B).** The SCWA was provided with the City's water use projections through this process. The City will continue to coordinate with the SCWA to determine the timing of capital improvement projects that may need to be implemented in order to meet the City's projected future water demands.

Additionally, as described in more detail in Chapter 7, the City has relied upon the water supply reliability projections provided by SCWA for the purposes of analyzing the reliability of its Russian River water supplies during normal and dry years through 2045.

2.2.2 Agency Coordination

☑ ***CWC § 10620 (d) (2)***

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.

As part of the development of this Plan, the City coordinated closely with the other eight SCWA Water Contractors. Among other methods, this coordination occurred through regular meetings of the TAC and WAC (see Section 2.2.1). These agencies also coordinated as part of the regional water conservation partnership, the Sonoma-Marin Saving Water Partnership (SMSWP). The City also coordinated with the

wastewater agency serving the City's service area, the Sonoma Valley County Sanitation District (SVCSD) as part of the preparation of this Plan. The agencies, cities, and counties that were notified by the City during the development of this Plan are listed in **Table 2-4**. A sample copy of the notices is provided in **Appendix C**.

Table 2-4 Notification to Cities and Counties (DWR Table 10-1)

Cities and Other Agencies	60 Day Notice	Notice of Public Hearing
City of Cotati	X	X
City of Petaluma	X	X
City of Rohnert Park	X	X
City of Santa Rosa	X	X
Marin Municipal Water District	X	X
North Marin Water District	X	X
Sonoma County Sanitation District	X	X
Sonoma County Water Agency	X	X
Sonoma Local Agency Formation Commission	X	X
Sonoma Valley Groundwater Sustainability Agency	X	X
Town of Windsor	X	X
Valley of the Moon Water District	X	X
County Name	**60 Day Notice**	**Notice of Public Hearing**
Sonoma County	X	X
NOTES:		

2.2.3 Public Participation

☑ *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.

Water suppliers are required by the Urban Water Management Plan Act (UWMP Act) to encourage active involvement of the community within the service area prior to and during the preparation of its UWMP and Water Shortage Contingency Plan (WSCP). The UWMP Act also requires water suppliers to make a draft of the UWMP and WSCP available for public review and to hold a public hearing regarding the findings of the UWMP and WSCP prior to their adoption. In addition to sending notices of the City's intent to prepare its UWMP and WSCP to the various agencies listed in **Table 2-4**, the City also included a public notice in the local newspaper (i.e., Sonoma Index-Tribune) notifying the public that draft UWMP and WSCP were available for review and that the City was seeking public input and comments, including during the public hearing. Public participation in the development of the City's 2020 UWMP and WSCP are summarized in **Appendix D**.

The Public Review Draft 2020 UWMP and WSCP was available for public review at the City's office and on the City's website (https://www.sonomacity.org/).

2.3 UWMP Structure, Standard Units, and Basis for Reporting

As summarized in **Table 2-5**, unless otherwise indicated, the data included in the following sections is presented in units of AF or AFY; annual values represent calendar years.

Further, consistent with the Guidebook, the terms "water use", "water consumption", and "water demand" are used interchangeably in this UWMP.

Table 2-5 Supplier Identification (DWR Table 2-3)

Type of Supplier	
	Supplier is a wholesaler
X	Supplier is a retailer
Fiscal or Calendar Year	
X	UWMP Tables are in calendar years
	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP	
Unit	AF
NOTES:	

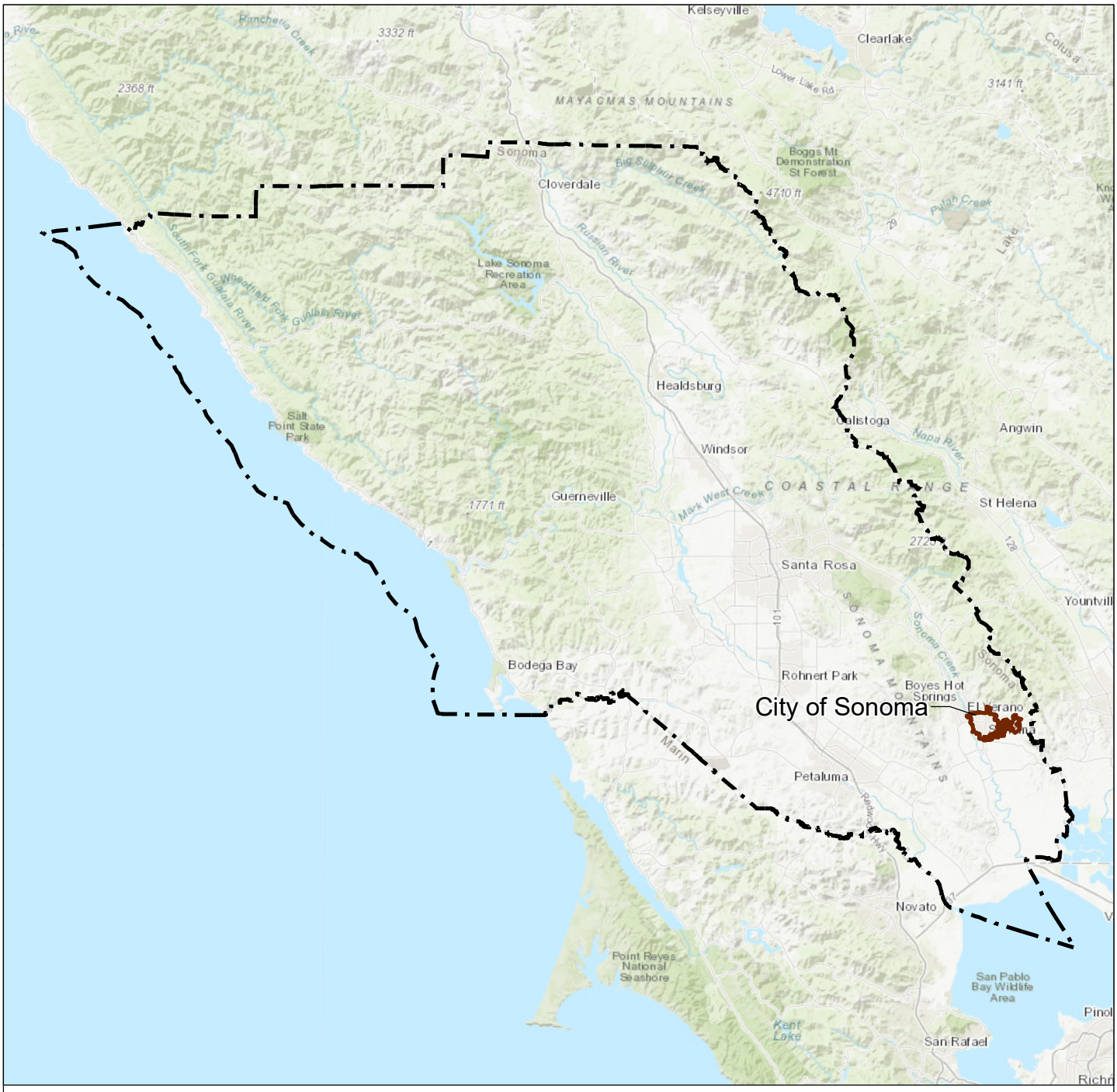
3. SYSTEM DESCRIPTION

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

Describe the service area of the supplier, including current and projected population, climate, and 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. 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, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

The City of Sonoma (City) is located approximately 50 miles northeast of San Francisco at the southern end of Sonoma County (**Figure 3-1** and **Figure 3-2**). The City's water service area (**Figure 3-2**) encompasses the city limits, as well as limited properties in the Sonoma County jurisdictional area to the east of the city limits along Thornsberry Road, Lovall Valley Road, Old Winery Road, Nut Tree Lane, East Napa Street, East MacArthur Street, Eighth Street East and Denmark Street, some with outside service area (OSA) agreements with the City. The Sphere of Influence (SOI) includes the City limit area, the Maxwell Farms Regional Park on the northwest of the City limit, and a portion of the mountain area in the north. The Urban Growth Boundary (UGB) dataset represents the nine cities, urban (incorporated) municipality urban growth boundaries within the County of Sonoma. The UGB is a planning tool used to limit growth around a city and promote efficient provision and expansion of city services outside city limits.

The Valley of the Moon Water District serves some properties along Junipero Serra Drive and Verano Avenue in the northwest area of the City. The service area is approximately 2.5 square miles and serves primarily residential and commercial customers. Elevations in the existing service area range from approximately 55 to 518 feet above mean sea level (ft msl).



Legend

- City of Sonoma Service Area
- Sonoma County

N

0 10 20

Miles

Notes

1. All locations are approximate.

Sources

1. Service area boundary provided by City of Sonoma.
2. Basemap provided by ESRI.

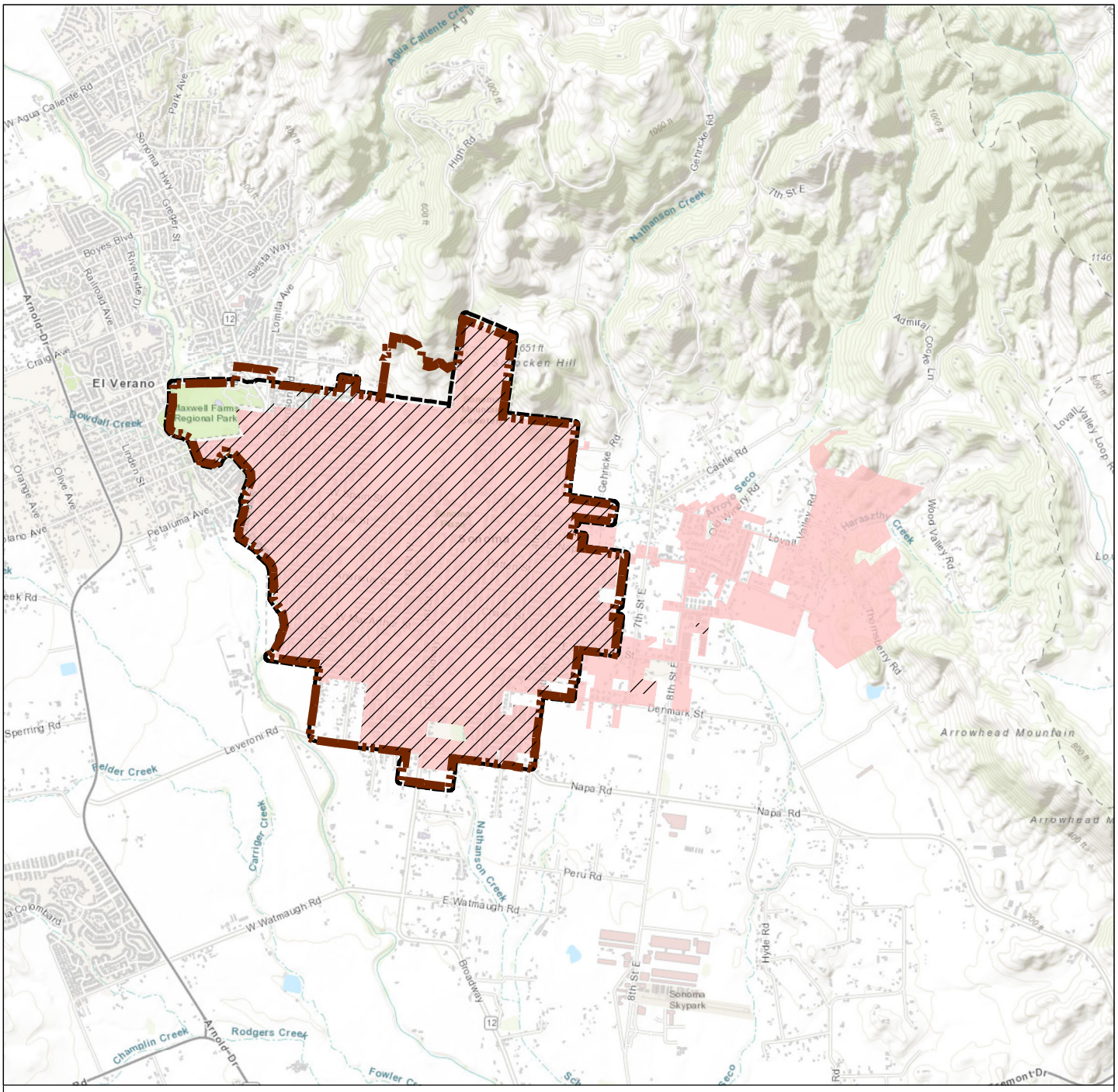
Regional Vicinity Map

City of Sonoma
June 2021
C00127.00

Figure 3-1

eki environment & water

Path: X:\C00127\Maps\2021\06\Fig3-1.mxd



Legend

- City of Sonoma Service Area
- City Limit
- Sphere of Influence
- Urban Growth Boundary

N

0 0.75 1.5

Miles

Notes

1. All locations are approximate.

Sources

1. Service area, sphere of influence, city limit, and urban growth boundaires are provided by City of Sonoma.
2. Basemap provided by ESRI.

City Service Area Map

City of Sonoma
June 2021
C00127.00

Figure 3-2

eki environment & water

Path: X:\C00127\Maps\2021\06\Fig3-2.mxd

3.1 Population and Employment Trends Within the Service Area

The demographics of the City's customers include a wide range of income, household size and water demands. Due to the City's service area being located in heart of a tourist destination, Sonoma Valley, one factor impacting water use in recent years has been the increase in the number of second homes and vacation rentals. These accounts can have higher water use on average because the sites do not have fulltime owners looking for leaks and managing irrigation water use in accordance with weather patterns.

The City's service area includes pocket areas of outside service area connections located in the Sonoma County jurisdictional area. The historical and current population within the City's water service area is calculated by adding the population within the City limits, as reported by the California Department of Finance (DOF), and the population outside of the City limits but served by the City (DOF, 2020). The population served outside of the City was calculated by multiplying the number of residential and commercial accounts by a persons-per-unit factor 2.11.[2]

3.1.1 Future Population Growth

Table 3-1 below presents current and projected population for the City. The population and employment projections are based on the 2018 Association of Bay Area Governments (ABAG) population and employment projections. Since the ABAG-estimated population is notably lower than the historical population, the ABAG growth rates for the City are applied to the current population estimate calculated as described above rather than using the absolute population values. The 2045 population is calculated based on 2035-2040 growth rate (2.0% over 5 years, or an average of 0.4% per year).

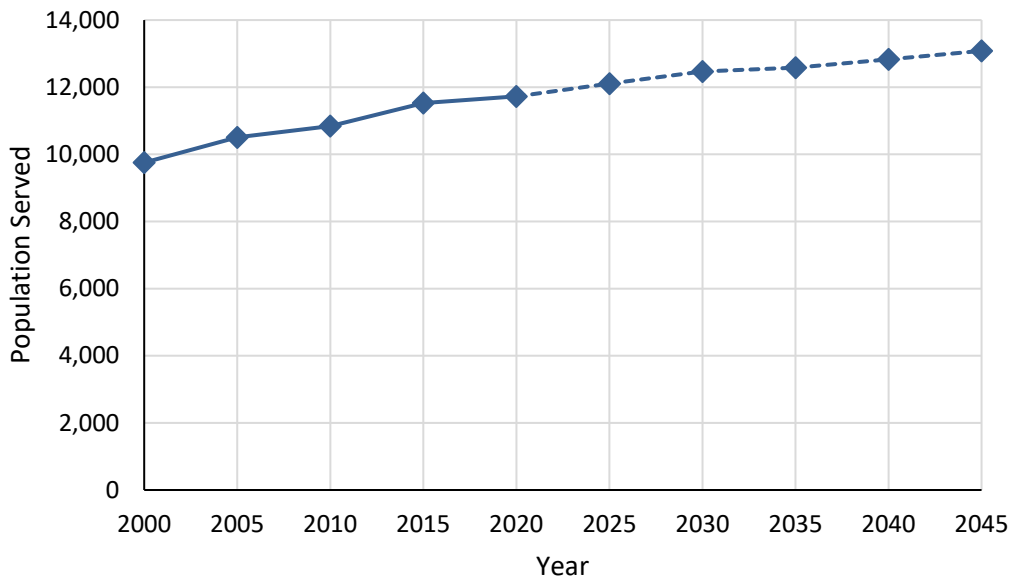
[2]The persons-per-unit factor estimated by the DOF, Demographics Research Unit varies from year to year, and the approximate middle of the range observed from 2000 to 2020, or 2.11 persons-per-unit, was used to estimate the population outside of the City's service area, which is consistent with the factor used for the City's General Plan (City of Sonoma, 2006).

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

Population Served	2020	2025	2030	2035	2040	2045
	11,725	12,108	12,469	12,582	12,830	13,082

NOTES: Population projection are per the 2018 Association of Bay Area Governments (ABAG) population projection. It is noted that the ABAG-estimated population is notably lower than historical population. Therefore, the rates of growth projected by ABAG are applied to the City's current population, rather than the absolute population values provided by ABAG. These projections are extended to 2045 using the same growth rate as projected for 2035-2040 (2% over 5 years, or an average of 0.4% per year).

Chart 3-1 Current and Projected Population



3.1.2 Future Employment Growth

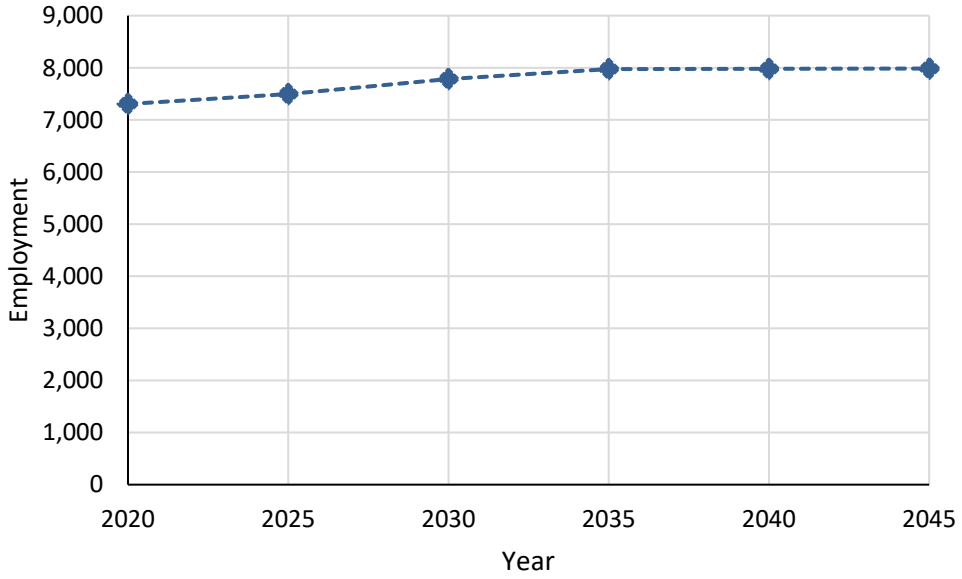
Table 3-2 below presents current and projected employment for the City.

Table 3-2 Employment - Current and Projected

Service Area Employment	2020	2025	2030	2035	2040	2045
	7,305	7,495	7,785	7,975	7,980	7,985

NOTES: Employment projections are per the 2018 Association of Bay Area Governments (ABAG) employment projection. These projections are extended to 2045 using the same growth rate as projected for 2035-2040 (0.063% over 5 years, or an average of 0.012% per year).

Chart 3-2 Current and Projected Employment



3.2 Land Uses within Service Area

Figure 3-3 is excerpted from the City's 2020 General Plan and shows that the most prevalent land use in the City is single-family residential, with about 43% of all land in Sonoma designated primarily for detached homes. Land for public uses, such as school, park, and hospital facilities, comprises the next largest category, with about 24% of the City and Sphere of Influence, while areas for multi-family housing account for roughly 17% of total land area. Areas designated for commercial uses, which also allow multi-family dwellings on site, encompass about 10% of the City and Sphere of Influence.

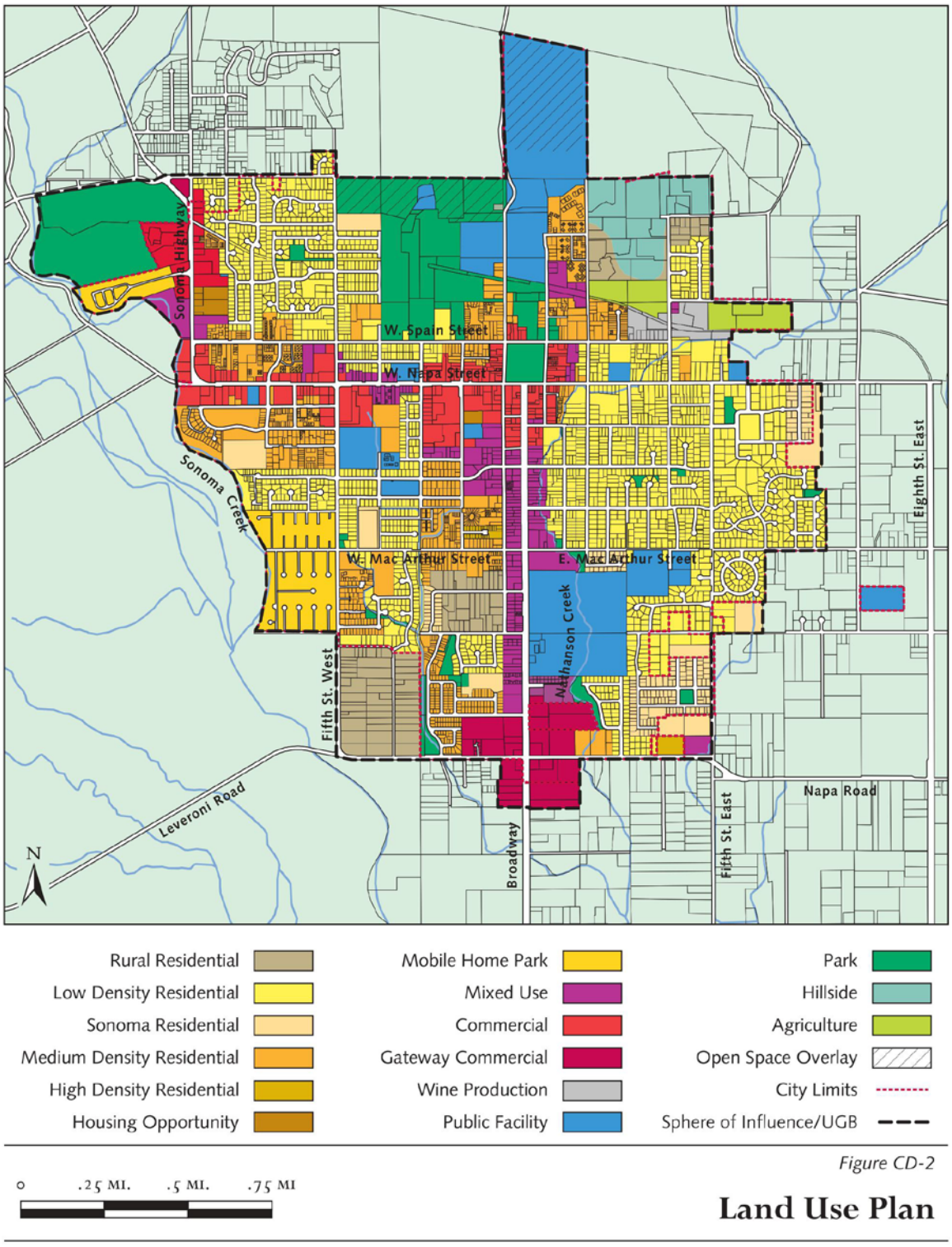


Figure 3-3 City Service Area Land Use (Excerpted from the 2020 General Plan [Sonoma, 2006])]

3.3 Service Area Social, Economic, and Demographic Factors

Demographics for the City are summarized in **Table 3-3**. The same data are also provided for the state of California as a whole. Data were obtained from the U.S. Census Bureau QuickFacts website (U.S. Census, 2021). Relative to the rest of California, the City's population is older and less racially diverse. Educational attainment and median household income in City are higher than for the state as a whole, and the percentage of the population below the poverty level is comparatively lower.

Table 3-3 Demographic and Housing Characteristics

Demographics (a)	City of Sonoma	California
Age and Sex		
Persons under 5 years	3.3%	6.0%
Persons under 18 years	16.3%	22.5%
Persons 65 years and older	30.4%	14.8%
Female persons	54.5%	50.3%
Race and Hispanic Origin		
White alone	90%	71.9%
Black or African American alone	0.3%	6.5%
American Indian and Alaska Native alone	0.1%	1.6%
Asian alone	2.7%	15.5%
Native Hawaiian and Other Pacific Islander alone	0.0%	0.5%
Two or More Races	4.0%	4.0%
Hispanic or Latino	21%	39.4%
White alone, not Hispanic or Latino	73%	36.5%
Families & Living Arrangements		
Households	5,125	13,044,266
Living in same house 1 year ago, percent of persons age 1 year+	84%	87%
Language other than English spoken at home, age 5 years+	18.5%	44.2%
Education		
High school graduate or higher, persons age 25 years+	91%	83.3%
Bachelor's degree or higher, persons age 25 years+	42%	33.9%
Income & Poverty		
Median Household Income (2019 dollars)	$84,352	$75,235
Per capita income in past 12 months (2019 dollars)	$52,619	$36,955
Persons in poverty	10.5%	11.8%

NOTES:
(a) Demographic data per the U.S. Census Bureau QuickFacts website (U.S. Census, 2021).

3.4 Climate

The climate of the City is typical of that of the eastern Sonoma County and western Napa County areas, characterized by summers that are dry and warm and winters that are relatively mild, with the majority of rainfall occurring during the rainy season (November through March). The regional averages of rainfall and temperature is presented in **Table 3-4**. The average annual rainfall is 29.4 inches and evapotranspiration (ETo) for the region is approximately 45 inches. ETo is a measurement of water evaporation combined with plant transpiration and is expressed in the form of a rate, typically inches per time period. In other words, ETo is the amount of water needed for common turf to grow in a specific region.

3.5 Climate Change Considerations

☑ ***CWC § 10630***

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning… while accounting for impacts of climate change.

Projections of climate change in California indicate a further intensification of wet and dry extremes and shifting temperature. Changing climate can affect both water uses and supplies. For example, extreme and higher temperatures can lead to increases in water use; declining snowpack and earlier runoff patterns could result in changes in stream flows and reservoir operations; projection of frequent, severe, prolonged droughts could lead to not only less surface water available, but also exacerbating ongoing stressors in groundwater basins. Some of these pressures are already apparent in California as of 2021.

Several sections in the California Water Code (CWC) relevant to UWMPs refer to climate change. Pursuant to CWC requirements and the UWMP Guidebook, this Plan incorporates climate change considerations into following relevant sections:

- Chapter 3 – System Description,
- Chapter 4 – Water Use Characterization,
- Chapter 6 – Water Supply Characterization, and
- Chapter 7 – Water Service Reliability and Drought Risk Assessment.

Hazards associated with climate change are discussed in the *Sonoma County Operational Area Hazard Mitigation Plan*, dated September 2017, which is incorporated into this UWMP by reference (County HMP; Sonoma County, 2017). The County HMP assesses Sonoma County's vulnerabilities to various hazards and presents mitigation strategies that are planned over the next five years. As of 2021, Sonoma County is currently in the process updating its HMP, using a multijurisdictional planning approach overseen by a steering committee made up of various stakeholders. Hazards described in the current County HMP include flooding, storms, wildfires, and landslides that are likely occur due to climate change. In 2011, the City attempted to annex to the County LHMP and developed its own Local Hazard Mitigation Plan (LHMP) (City LHMP) (Sonoma, 2001). The City LHMP also describes the City's adaption planning in the events of earthquakes, liquefaction, floods, landslides, wildland fire, and droughts. The City is currently updating its LHMP as an annex to the County LHMP that is under development.

A discussion of climate change impacts specific to the SCWA water system is provided in the *Sonoma County Water Agency Local Hazard Mitigation Plan,* dated 16 October 2018, which is also incorporated into this UWMP by reference (SCWA LHMP; SCWA, 2018). 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. As described in the SCWA LHMP, the most significant climate change-related vulnerabilities for SCWA are associated with floods, wildfires, landslides, and drought.

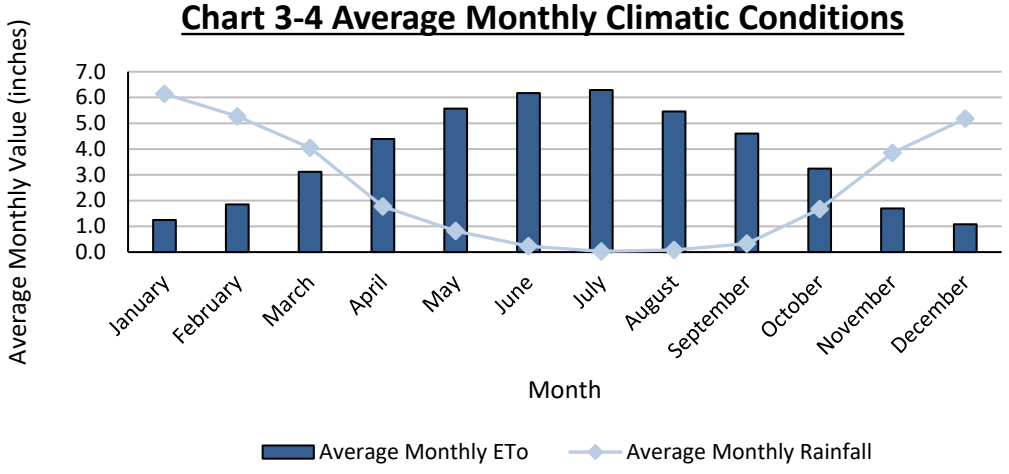
Climate change impacts on the City's water demands are discussed in Section 4.4, while climate change impacts on the City's water supply are discussed in Section 7.1.3.

Table 3-4 Climate Characteristics

Month	Average Temperature		Standard Average ETo (a) (inches)	Average Rainfall (b) (inches)
	Min (°F)	Max (°F)		
January	37.2	57.2	1.2	6.14
February	39.9	63.2	1.9	5.27
March	40.8	66.4	3.1	4.05
April	42.3	71.2	4.4	1.77
May	46	77.2	5.6	0.82
June	49.7	84.1	6.2	0.23
July	51.2	88.6	6.3	0.03
August	50.8	88.2	5.5	0.08
September	49.3	86.3	4.6	0.33
October	45.5	78.6	3.2	1.67
November	40.6	65.9	1.7	3.85
December	37.1	57.5	1.1	5.18
Annual	**44.2**	**73.7**	**45**	**29.4**

NOTES:
(a) Precipitation and temperature data were obtained from the Sonoma Climate Station (048351) from the Western Regional Climate Center for the period 1 January 1893 through 31 May 2016.
(b) ETo (potential evapotranspiration) were the average ETo from the California Irrigation Management Information System (CIMIS) for the period of March 1993 to December 2020.

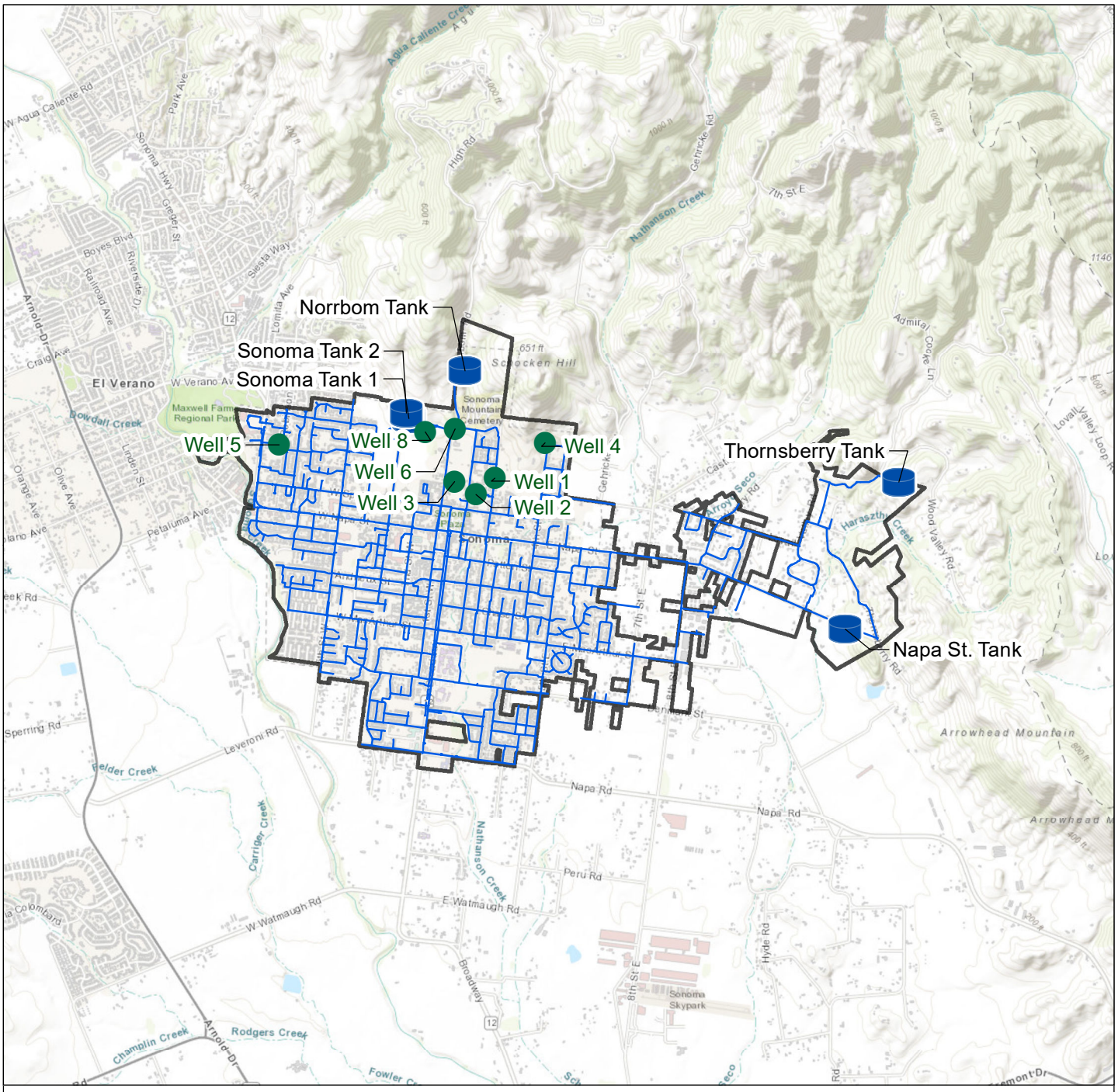
Chart 3-4 Average Monthly Climatic Conditions



3.6 Water Distribution System

The water distribution system contains three pressure zones that are each served by one or more storage tanks. Most of the system is contained within Zone 1. Potable water from SCWA is delivered to two SCWA tanks located north of the distribution system (referred to as "Sonoma Tank 1" and "Sonoma Tank 2"), which feed Zone 1 via a 16-inch aqueduct. The distribution system is shown on **Figure 3-4**.

The principal water mains in the distribution system range in diameter from 4 to 14 inches. Most of the distribution grid piping in the older sections of the City range in diameter from 1-1/2 to 4 inches, while the newer areas are served by pipes 6 to 8 inches in diameter. City maintained water mains are asbestos-cement (AC), polyvinylchloride (PVC), polyethylene (PE), ductile iron (DI), and steel (STL). Approximately half of the water system pipelines are AC pipe. There are three City-owned welded steel storage tanks within the distribution system, including the Napa Street Tank (2.0 million gallon [MG] capacity), the Thornsberry Tank (0.5 MG capacity) and the Norrbom Tank (3.0 MG capacity), each serving one of the three zones in the distribution system. **Figure 3-4** also shows the locations of the eight existing groundwater supply wells that serve the City.



Legend

City of Sonoma Service Area

Facilities

Tank

Well

Distribution Water Mains

Notes

1. All locations are approximate.
2. Well No. 7 is not shown on the Figure as it does not currently have a pump and will be inactive for the forseeable future.

Sources

1. Service area and water distribution systems data are provided by City of Sonoma.
2. Basemap provided by ESRI.

N

0 0.75 1.5

Miles

City Water System Map

City of Sonoma
June 2021
C00127.00

Figure 3-4

eki environment & water

Path: X:\C00127\Maps\2021\06\Fig3-4_SystemDistributions.mxd

4. WATER USE CHARACTERIZATION

☑ ***CWC § 10631 (d) (1)*** *A plan shall be adopted in accordance with this chapter that shall do all of the following:*

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).*

For purposes of this Urban Water Management Plan (UWMP), "potable water demand" is defined to be the volume of water produced by the City of Sonoma (City), including purchased Sonoma County Water Agency (SCWA) water and groundwater pumped by the City. Among other factors, water demand is dependent on climate, population, industry, and the types of development present in a community. Sections 4.1 and 4.2 describe the City's historical and projected water uses for residential, commercial, institutional, and landscape irrigation purposes (water use sectors A, B, C, E, and F, per California Water Code (CWC) §10631(e)(1)). Distribution system water loss (water use sector J) is discussed in Section 4.1.3. As described in Section 4.3, this discussion does not include demands for water use sectors D, G, H, and I, as they are not applicable or present within the City's service area. Section 4.4 describes anticipated climate change impacts to demand, and Section 4.5 discusses future urban water use objective requirements. Note that the water demand projections are presented based on the current best available information and are subject to review and revision every 5 years as part of the UWMP update process.

4.1 Current and Historic Total Water Demand

The following section of the UWMP presents the City's historical and current water demands, as well as the projected future demand in 5-year increments between 2025 and 2045.

4.1.1 Current and Historical Potable Water Demand

Current and historical potable water use over the five-year period 2016 through 2020, including water use by individual customer sectors, is presented in **Table 4-1** and its associated charts**.**

Water demand within the City's service area is measured using water meters that are installed at each customer account. Records of current and historical water use at each account are maintained by the City and are based on billing data. Water demand within the City's service area is tracked and reported on a bi-monthly basis for the following sectors:

- Single Family Residential (SFR);
- Multi-Family Residential (MFR);
- Commercial / Institutional;
- Landscape / Irrigation; and
- Other, including fire line services and hydrant meters.[1]

Water use in the City's service area is predominantly residential use. The residential customers number approximately 87 percent of the total water billing accounts and are approximately 66 percent of the total water deliveries. Commercial / institutional customers are the next largest customer type and are approximately 6.7 percent of the total water billing accounts and are approximately 14 percent of the total water deliveries. As shown **Table 4-2** and its associated charts, the total and per capita water use first decreased from 2010 to 2011, then increased from 2011 through 2013, and then declined from 2014 through 2016. These trends were likely influenced by the historic drought conditions, mandatory state-wide restrictions in urban water use imposed by the SWRCB, and local drought response. Total and per capita water use has remained lower than pre-drought conditions, with an increase in 2017 and 2018, indicating a degree of rebound following the drought. The total demand decreased slightly in 2019 and then increased in 2020, which may in part be due to elevated residential water demand associated with COVID-19 stay-at-home orders.

[1] Based on discussions with the City, prior to 2020 the "Other" sector also included some municipal accounts.

Table 4-1 Demands for Potable and Non-Potable Water - Actual (DWR Table 4-1)

Use Type	Additional Description *(as needed)*	Level of Treatment When Delivered	Volume				
			2016	2017	2018	2019	2020
Single Family		Drinking Water	899	1,028	1,037	1,054	1,223
Multi-Family		Drinking Water	258	273	277	272	306
Commercial	Commercial/ Institutional	Drinking Water	244	255	253	249	371
Landscape	Landscape Irrigation	Drinking Water	103	160	151	123	136
Losses	(b)	Drinking Water	104	117	198	264	137
Other	Unbilled Consumption (b)(c)	Drinking Water	130	166	159	110	1
		TOTAL	1,738	1,999	2,075	2,071	2,174

NOTES:
(a) Volumes are in units of AF.
(b) Losses are the "water losses" value calculated in the City's Audited AWWA Water Loss Worksheets, reported on a calendar year basis. The audited AWWA Worksheet for 2020 is not yet available. Losses for 2020 represent total non-revenue water, inclusive of unbilled consumption.
(c) Other non-revenue water includes unbilled unmetered consumption such as fire flow, and hydrant meters. Some municipal accounts were reportedly included in the "other" sector in City records prior to 2020.

Chart 4-1A Annual Water Demand by Sector: 2016-2020

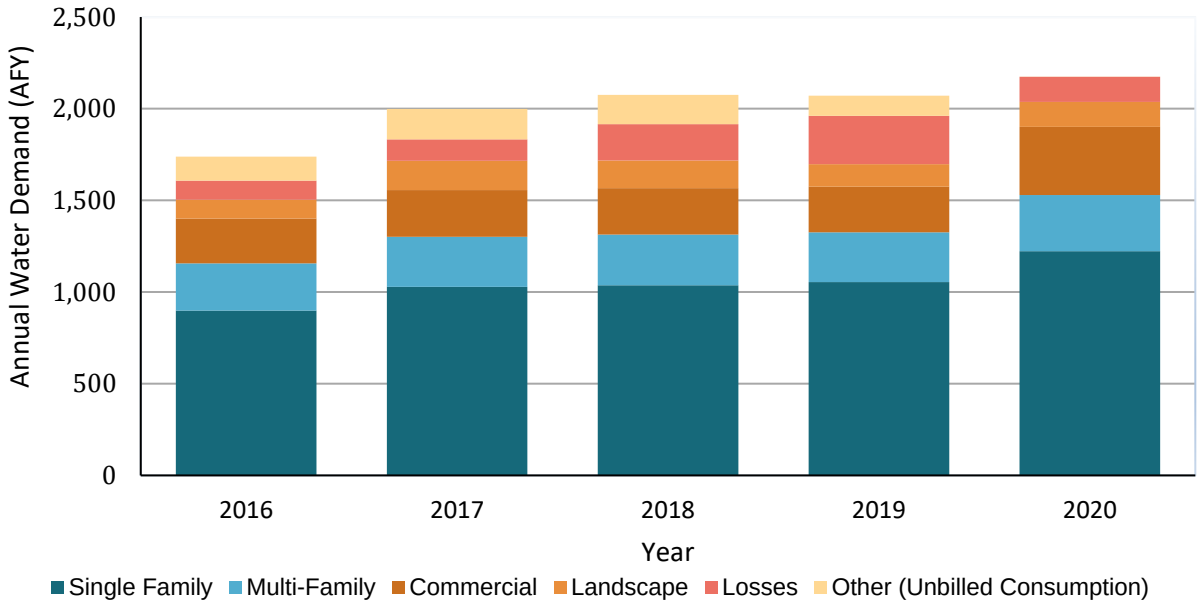


Chart 4-1B Percentage of Total Water Demand by Sector: 2016-2020

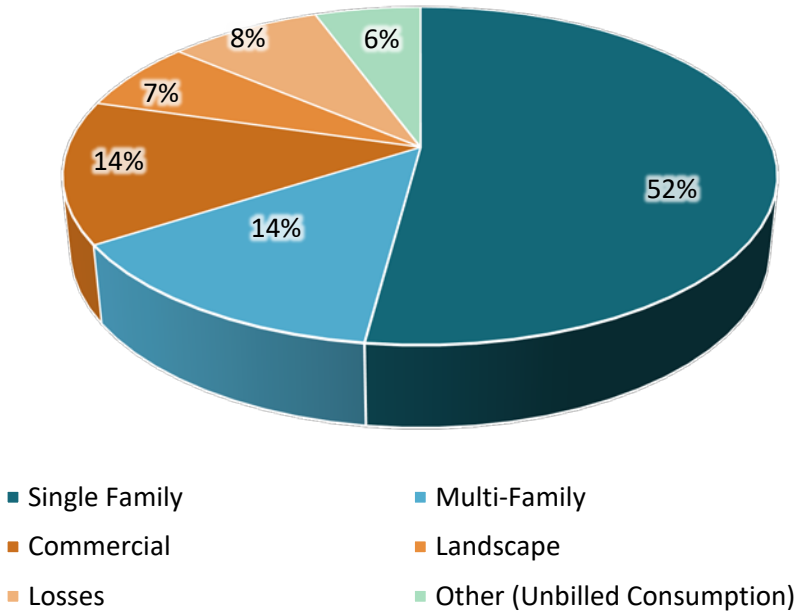
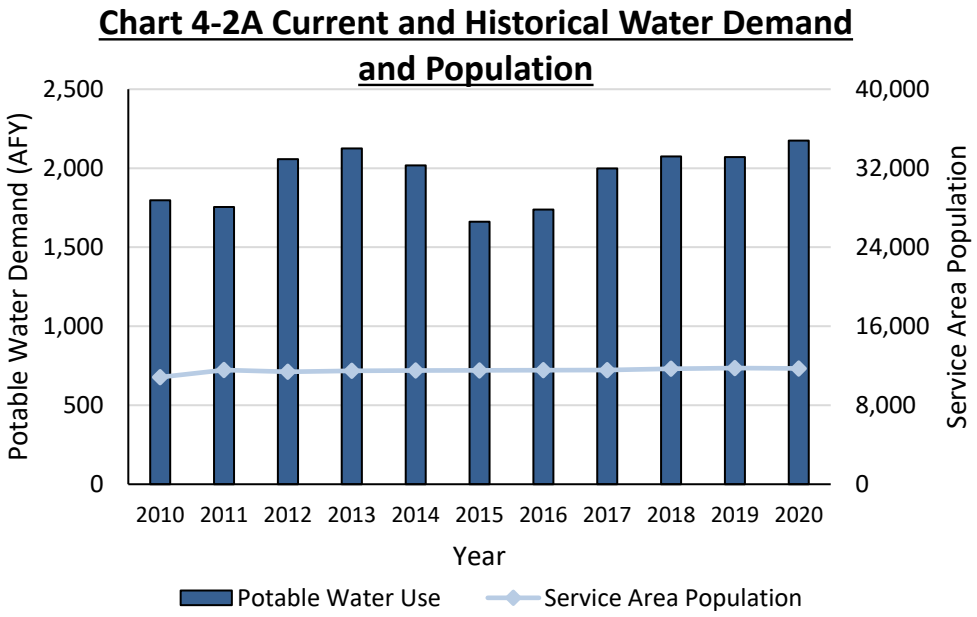
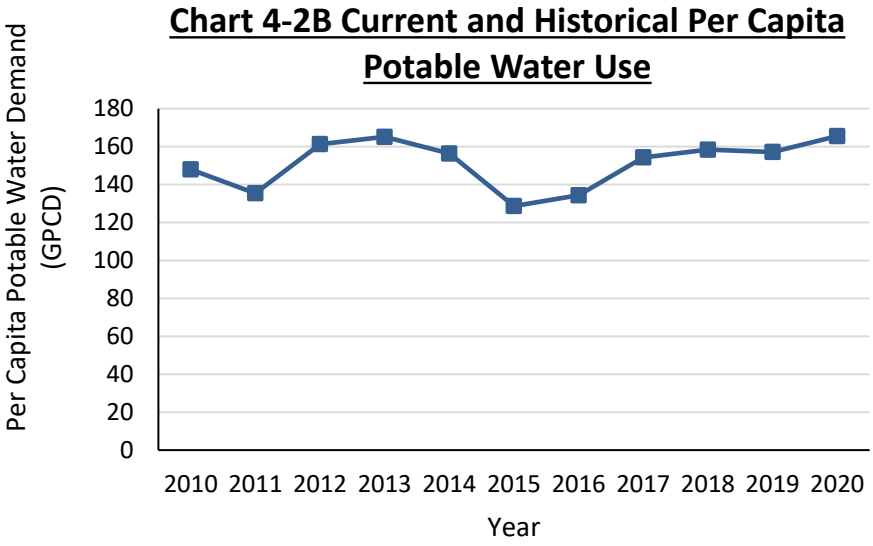


Table 4-2 Current and Historical Potable Water Demand and Population (DWR Table 4-6)

Year	Potable Water Demand	Service Area Population	Per Capita Potable Water Use (GPCD)
2010	1,797	10,842	148
2011	1,755	11,571	135
2012	2,057	11,387	161
2013	2,126	11,490	165
2014	2,018	11,520	156
2015	1,662	11,529	129
2016	1,738	11,551	134
2017	1,999	11,562	154
2018	2,075	11,695	158
2019	2,071	11,764	157
2020	2,174	11,725	166

NOTES:
(a) Volumes are in units of AF.





4.1.2 Current and Historical Non-Potable Water Demand

Non-potable water has not been used in the City's service area. However, the City plans to use non-potable water in the future as discussed in Section 4.2.2.

4.1.3 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.

Distribution system water losses for the previous five calendar years are summarized in **Table 4-3.** 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 water lost 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 the "AWWA Water Loss Worksheet"). This analysis separates water loss into "apparent" and "real" losses. Apparent losses include metering inaccuracies, systematic data handling errors, and unauthorized consumption. Real losses represent water loss attributable to the distribution system and include physical water losses from the pressurized system and storage tanks up to the point of customer consumption.

Total water losses for 2015 through 2019 as calculated in AWWA Water Loss Worksheets are provided in **Table 4-3**; and are available through DWR's Water Use Efficiency Data Portal.[2] The "Losses" are a portion of the total differential between water supply and metered water use; the remaining portion is unbilled consumption such as system flushing, leak repair flushing, hydrant leaks, and street sweeping.

During 2019, the City's real losses were calculated to be 236 AF, or 11.4 percent of the total volume of water supplied; apparent losses were estimated to be 27.6 AF, or approximately 1.3 percent of the total volume of water supplied, and the water losses were summed to be 264 AF, or approximately 12.7 percent of the total volume of water supplied. The City actively manages its distribution system to minimize leakage through actions such as managing system-wide pressures to prevent pressure spikes, installing permanent acoustic leak sensors, and repairing all known leaks immediately.

CWC § 10631 (3)(c) requires that this UWMP demonstrate whether the distribution loss standards enacted by the State Water Resources Control Board (SWRCB) pursuant to § 10608.34 have been met. However, the SWRCB has yet to establish these standards, and thus consistency with these standards cannot be demonstrated herein.

[2] DWR's Water Use Efficiency Data Portal: https://wuedata.water.ca.gov/awwa_plans

Table 4-3 12 Month Water Loss Audit Reporting (DWR Table 4-4)

Reporting Period Start Date	Volume of Water Loss
01/2015	211
01/2016	104
01/2017	117
01/2018	198
01/2019	264
NOTES: (a) Volumes are in units of AF. (b) Water loss is the "water losses" value calculated in the City's AWWA Water Loss Worksheets.	

4.2 Projected Total Water Demand

The City's water demand projections were prepared as part of the *2020 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update,* 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.

4.2.1 Projected Potable Water Demand

As described in more detail below and in the *2020 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update* (**Appendix B**), projected water demands for the City were estimated by:

- Applying an estimated growth rate to the number of accounts within each water use sector based on projected population and employment growth rates,
- Identifying known planned developments within the City to verify that account growth projections consider all currently anticipated growth,
- Evaluating and selecting water demand factors for each water use sector based on review of recent average per account water use representing three scenarios (i.e., pre-drought conditions, post-drought conditions, and a partial drought rebound scenario),
- Estimating future passive savings using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (AWE model), and
- 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 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 City and reflect a land-use based approach consistent with community planning within the City.

Projected customer water demands for years 2025 through 2045 are presented **Table 4-4**. These projected demands are broken down by sector, including water loss. As indicated in **Table 4-5**, the water use projections presented in **Table 4-4** include assumptions about future water savings due to passive conservation and water use by lower income households. As affirmed in **Table 4-5**, both future water savings (Section 4.2.4) and lower income residential demands (Section 4.2.3) are included in the projections of future water use.

Table 4-4 Use for Potable and Non-Potable - Projected (DWR Table 4-2)

Use Type	Additional Description *(as needed)*	Projected Water Use				
		2025	2030	2035	2040	2045
Single Family		1,155	1,172	1,170	1,183	1,198
Multi-Family		313	304	300	300	302
Commercial	Commercial/ Institutional	253	256	258	254	251
Landscape	Landscape Irrigation	149	154	158	158	158
Other		173	179	180	184	187
Losses	(c)	174	179	181	184	187
TOTAL		2,218	2,244	2,247	2,263	2,283

NOTES:
(a) Volumes are in units of AF.
(b) Projected demands include estimated passive savings within each use type, thus total demands do not increase commensurate with the growth in number of accounts within each sector.
(c) Losses represent all the non-revenue water, which includes apparent loss, real loss, and unbilled authorized consumption.

Chart 4-4 Current and Projected Water Demand by Sector

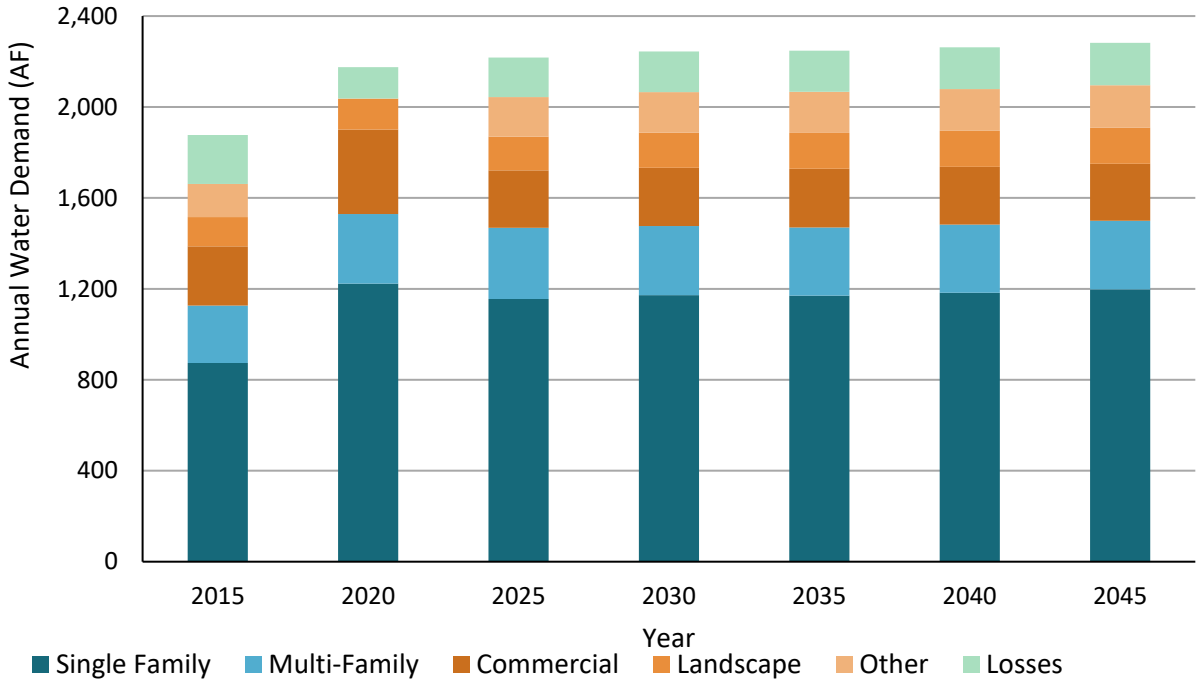


Table 4-5 Inclusion in Water Use Projections (DWR Table 4-5)

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.	**Section 4.2.4, Appendix B**
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES:	

4.2.2 Projected Non-Potable Water Demand

Projected recycled water demand is based on the City's 2015 UWMP projections (Sonoma, 2016). The 2015 UWMP anticipated recycled water would be in use by 2017, however implementation was delayed. Construction is currently underway, and the City anticipates that recycled water deliveries will begin prior to 2025. Recycled water demand is projected to be 55 acre-feet per year (AFY) in 2045. Per the City staff, approximately 50 AF is projected to be delivered to the Sonoma Valley Unified School District beginning in 2021, and 5 AF is anticipated to be supplied to the City park on Engler Street at a yet unknown date.

4.2.3 Water Use for 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 indicated in **Table 4-5**, water use projections presented in Section 4.2.1 and **Table 4-4** include projected water use by lower income households. A "lower income household" is defined under California Health and Safety Code § 50079.5(a) to be a household with less than 80 percent of median income, adjusted for family size. The Association of Bay Area Governments' (ABAG's) 2023-2031 Regional Housing Needs Allocation Proposed Methodology for the San Francisco Bay Area (ABAG, 2020) was used to determine proportion of new lower income households for the City. New lower income households were estimated to comprise approximately 43 percent of all new households needed for the City. **Table 4-6** shows the projected water demands for new lower income households based on 43 percent of the total single-family and multi-family residential projected water uses included in **Table 4-4.**

Table 4-6 Projected Water Use for Lower Income Households

Lower-Income Water Demand Sector	Projected Water Use (AFY)				
	2025	2030	2035	2040	2045
Single Family Residential	492	499	499	504	510
Multi-Family Residential	133	130	128	128	129
Total	626	629	626	632	639
NOTES: (a) Volumes are in units of AF.					

4.2.4 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 City. 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 4.2.1 and summarized **Table 4-4** include water savings associated with these codes and standards. Specifically, as shown in **Table 4-7** and its associated chart, the projected water savings for the City were calculated to be 141 AFY by 2045, using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (referred to as the AWE model; AWE, 2016). 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 estimates using the AWE model can be found in **Appendix B**.

Additionally, Sonoma County adopted a Water Efficient Landscape Ordinance that has been in effect since January 2010.[3] This ordinance requires a landscape plan check for certain projects, and includes requirements for landscape water budgets, landscape and irrigation design, and irrigation scheduling. The ordinance is located in Section 7D3 of the Sonoma County Code (Building Regulations) and supersedes the Low Water Use Landscaping Ordinance located in Zoning Code Section 26-88-110. Both public water system customers and groundwater users are subject to the ordinance.

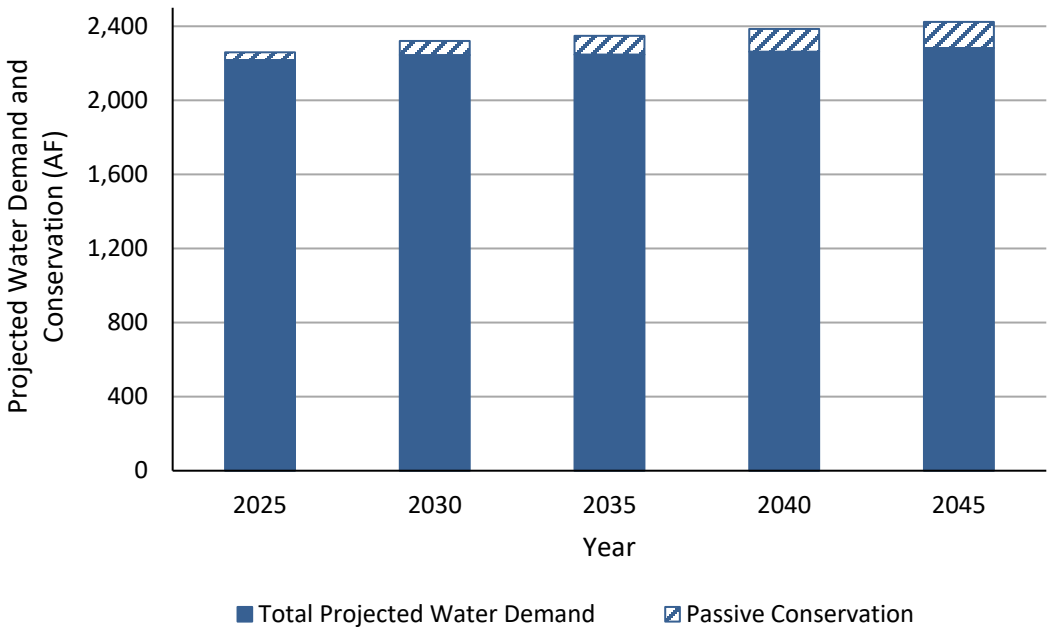
While projections account for passive savings, the City has taken a more conservative approach to demand projections by not accounting for savings associated with future active conservation measures. However, savings associated with all past active conservation efforts are embedded into the demand projections. This approach is conservative, as it projects the highest level of probable demand. Active conservation thus increases resiliency for City customers by further increasing efficient utilization of available supplies.

[3] The Water Efficient Landscape Ordinance can be viewed here: https://library.municode.com/ca/sonoma_county/codes/code_of_ordinances?nodeId=CH7D3WAEFLA

Table 4-7 Projected Potable Water Demand and Projected Passive and Active Water Conservation

Water Conservation Type	Projected Total Water Demand				
	2025	2030	2035	2040	2045
Projected Water Demand Without Conservation	2,260	2,320	2,349	2,386	2,424
Projected Passive Conservation	42	76	101	123	141
Projected Water Demand after Passive Conservation Savings	2,218	2,244	2,247	2,263	2,283
NOTES: (a) Volumes are in units of AF. (b) Active conservation is being implemented but that the amount of savings and rate of implementation by customers cannot be known at this time.					

Chart 4-7 Projected Water Demand and Conservation



4.2.5 Projected Total Water Demand

Table 4-8 summarized the projected total gross water use by the City in the next 25 years, which includes potable and non-potable water. It should be noted that water loss in the non-potable, or recycled, water demand was not quantified due to limited audits in the recycled water distribution systems.

Table 4-8 Total Water Use (Potable and Non-Potable) (DWR Table 4-3)

	2020	2025	2030	2035	2040	2045
Potable Water, Raw, Other Non-potable *From DWR Tables 4-1 and 4-2*	2,174	2,218	2,244	2,247	2,263	2,283
Recycled Water Demand *From DWR Table 6-4*	0	55	55	55	55	55
TOTAL WATER USE	2,174	2,273	2,299	2,302	2,318	2,338
NOTES: (a) Volumes are in units of AF.						

4.3 Water Use Sectors Not Included in the Demand Projections

Several water use sectors listed in CWC §10631(d)(1) are not included in the water demand projections described in Sections 4.1.2 and 4.2.1 because they are not applicable to the City. The following sectors were not included in the demand projections in this Plan:

- Industrial (CWC §10631(d)(1)(D)) – The City does not currently, nor does it plan to, provide water for industrial uses.
- Sales to Other Agencies (CWC §10631(d)(1)(G)) – The City does not currently, nor does it plan to, sell water to other agencies.
- Saline Water Intrusion Barriers, Groundwater Recharge, or Conjunctive Use (CWC §10631(d)(1)(H)) – The City does not currently use, nor does it plan to use, water for saline water intrusion barriers or conjunctive use. However, as further discussed in Section 6.8, the City is working with the other entities to evaluate the technical feasibility of aquifer storage and recovery (ASR) as a method for groundwater banking.
- Agricultural (CWC §10631(d)(1)(I)) – The City does not currently, nor does it plan to, provide water for agricultural uses.

4.4 Climate Change Impacts to Demand

☑ ***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 methodology used to develop demand projections herein considers the impacts of climate change on projected demands. California experienced a historic drought between 2011-2017. In 2014, Governor Brown issued Executive Order B-26-14 declaring a Drought State of Emergency and requested all Californians to voluntarily reduce water use by 20 percent. In 2015, the State Water Resources Control Board implemented emergency conservation regulations that, among other things, required water

agencies to reduce their water use and prohibited certain types of water uses. As a result, the City experienced an overall decrease in demands during the historic drought, most significantly during 2015. As explained further in **Appendix B**, the demand factors evaluated herein consider both the 2011-2013 period, in which customers increased their water use (in part due to the drought conditions, prior to the imposed restrictions), as well as the observed rebound in demand following the drought (2017-2019). Thus, the periods used to develop the demand projections reflect conditions representative of the hotter, drier weather expected as a result of climate change.

4.5 Urban Water Use Objectives (Future Requirements)

☑ ***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.

Beginning in 2023, urban water retailers will be required to report on "annual water use objectives" by November 1 of each year and to achieve these objectives by 1 January 2027. The annual water use objectives will be calculated based on standards for indoor residential water use, outdoor residential water use, and distribution system water loss. Additionally, it is anticipated that performance-based standards for the commercial, industrial, and institutional sectors, separate from the annual water use objectives, will also be developed by DWR and implemented in the future. However, the specific standards that will be used to determine a retailer's annual urban water use objectives are currently under development by DWR, and thus, the annual urban water use objectives for the City cannot be calculated or estimated. Once the urban water use objectives are released, the City will evaluate its historical and

current water use compared to the new objectives, and will evaluate the need to adjust its conservation and water loss management measures to meet the new objectives.

One of the components for calculating the future water use objectives is provided for in CWC § 10609.4.(a), which states "(1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily. (2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be the greater of 52.5 gallons per capita daily or a standard recommended pursuant to subdivision (b). (3) Beginning January 1, 2030, the standard for indoor residential water use shall be the greater of 50 gallons per capita daily or a standard recommended pursuant to subdivision (b)."[4] **Table 4-9** shows an estimate of future per capita residential water use, broken out by estimated indoor and outdoor water use, per the analysis provided in **Appendix B**. Based on these estimates, per capita indoor residential potable water use is expected to be at or below the indoor use standards presented in the legislation. Although indoor residential water use is expected to be within the indoor residential water use standard, it should be noted that because standards have not yet been developed for the outdoor water use or water loss components of the future water use objectives, it cannot be known whether projected demands for the City will be in compliance with the pending requirements.

[4] While the legislation appears to be clear on the method to calculate the indoor residential water use component, the SWRCB has begun the California Environmental Quality Act (CEQA) process for the new water use objective requirements and has expressed concern that using the 55 gallons per capita per day (GPCD) number in the legislation will constitute "backsliding" (compared to the reduction required by SB X7-7) and thus may need to be lowered.

Table 4-9 Current and Projected Residential Per Capita Water Use

Year	Residential Potable Water Demand	Service Area Population	Per Capita Residential Potable Water Use (GPCD)	Approximate Per Capita Indoor Residential Potable Water Use (GPCD)	Approximate Per Capita Outdoor Residential Potable Water Use (GPCD)
2020	1,529	11,725	116	56	61
2025	1,469	12,108	108	52	56
2030	1,476	12,469	106	51	55
2035	1,470	12,582	104	50	54
2040	1,483	12,830	103	50	54
2045	1,500	13,082	102	49	53

NOTES:
(a) Volumes are in units of AF.
(b) The approximate indoor and outdoor residential water use breakdown is based on the estimated residential indoor and outdoor water use breakdowns of 52% residential indoor water use and 48% is residential outdoor water use, as documented in **Appendix B**.

5. SBX7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

☑ ***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.

With the adoption of the Water Conservation Act of 2009, also known as SB x7-7, the state is required to reduce urban water use by 20 percent by the year 2020. Each urban retail water supplier was required to develop a baseline daily per capita water use ("baseline water use") in their 2010 Urban Water Management Plan (UWMP) and establish per capita water use targets for 2015 and 2020 in order to help the state achieve the 20 percent reduction. Under SB X7-7 urban retail water suppliers may either comply with their 2020 targets on an individual basis or as part of a regional alliance. As identified in **Table 2-2,** the City of Sonoma (Sonoma or City) is part of the North Marin-Sonoma Alliance (Alliance), which includes eight other regional water retailers.

In support of implementing the requirements of SB x7-7, DWR produced a set of methodologies for developing baseline and compliance water use and targets, which are included in Methodologies for Calculating Baseline and Compliance Urban Per Capita Water, California Department of Water Resources Division of Statewide Integrated Water Management Water Use and Efficiency Branch, (Methodologies; DWR, 2016b). The City has not made any changes to the information in its 2015 UWMP pertaining to the baseline water use or interim 2015 target compliance.

In this chapter, the City demonstrates compliance with its 2020 per capita water use target. As part of the compliance reporting for SB x7-7, water suppliers are required to complete and submit a set of standardized verification tables in their 2020 UWMPs. The information in these tables is discussed and summarized in the following subsections, and the complete set of SB x7-7 standardized tables, for both individual and regional reporting, is included in **Appendix E**.

5.1 Service Area Population

☑ ***CWC § 10608.20 (e)***

An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

☑ ***CWC § 10608.20 (g)***

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

☑ ***Methodology 2 Service Area Population****.*

DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates. (DWR, 2016b)

For the 2015 UWMP, the City obtained approval from Gwen Huff of the California Department of Water Resources (DWR) to estimate the 2015 City population based on the 2013 Association of Bay Area Governments (ABAG) population projection.[5] The 2010 City population in 2010 UWMP was based on the City of Sonoma Growth Management Ordinance adopted on 20 February 2008.

For 2020, the current population within the City's water service area was calculated using the California Department of Finance (DOF) method described in the Methodologies (i.e., Methodology 2 – Service Area Population). For this calculation, the population within the City limits, as reported by the California Department of Finance (DOF), was added to the population outside of the City limits but served by the City (DOF, 2020). The population served outside of the City was calculated by multiplying the number of residential and commercial accounts by a persons-per-unit factor of 2.11. The City's 5- and 10-year baseline populations, per the 2015 UWMP are presented in **Table 5-1** below.

[5] ABAG boundaries were aligned with the City of Sonoma's water service area boundary as provided by the water agency to ascertain the percent of the service area in each jurisdiction.

Table 5-1 SB X7-7 Service Area Population

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1995	9,002
Year 2	1996	9,153
Year 3	1997	9,303
Year 4	1998	9,453
Year 5	1999	9,604
Year 6	2000	9,754
Year 7	2001	9,904
Year 8	2002	10,055
Year 9	2003	10,205
Year 10	2004	10,355
5 Year Baseline Population		
Year 1	2003	10,205
Year 2	2004	10,355
Year 3	2005	10,506
Year 4	2006	10,595
Year 5	2007	10,684
2020 Compliance Year Population		
2020		11,725
NOTES: Historical population source: Association of Bay Area Governments (ABAG). Plan Bay Area Projections 2013, December 2013. Online: http://abag.ca.gov/planning/housing/projections13 .html		

5.2 Baseline Water Use

The baseline water use is the water supplier's average gross daily water use per capita measured in gallons. This baseline includes all water entering the delivery system, including water losses. A water supplier may deduct from its gross water use water conveyed to other urban water suppliers, water placed into long-term storage, recycled water delivered within the supplier's service area, water delivered for agricultural use, water conveyed to other urban water suppliers, and water used for industrial processes.

Water suppliers must define a 10- or 15-year base (or baseline) period for water use that is then used to develop their future target per capita water use. Water suppliers must also calculate water use over a 5-year baseline period and use that value to determine a minimum required reduction in water use by 2020. Utilizing a 15-year baseline period is only allowed for water suppliers that meet at least 10 percent of their 2008 measured retail water demand through recycled water; the City does not meet this criterion and thus selected a 10-year baseline.

For the development of the City's baseline water use, a 10-year average was used from 1995 to 2004. The 10-year baseline water use calculated in the City's 2015 UWMP was 225 gallons per capita per day (GPCD). No deductions were made to the City's gross water use.

The City was also required to determine its 5-year base daily per capita water use in its prior UWMPs, which was calculated to be 206 GPCD.

5.3 Water Use Targets

☑ ***CWC § 10608.20 (b)***

An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

☑ ***CWC § 10608.22***

Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

5.3.1 Individual Water Use Targets

Table 5-2 shows the City's 5- and 10-year baseline periods, its baseline GPCD for these periods, and its confirmed 2020 target, which were previously developed and reported in its 2015 UWMP.

Table 5-2 Baselines and Targets Summary (DWR Table 5-1)

Baseline Period	Start Year	End Year	Average Baseline GPCD	Confirmed 2020 Target GPCD
10-15 year	1995	2004	225	180
5 Year	2003	2007	206	
NOTES:				

5.3.2 Regional Water Use Targets

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 Section 2.2.2, the City is one of eight Water Contractors to the Sonoma County Water Agency (SCWA) for purchase of Russian River water supply. As such, the Water Contractors are eligible to form a Regional Alliance under the provisions of SB x7-7 because they are recipients of water from a common wholesale water supplier. A water conservation regional partnership among the eight Water Contractors is already in existence in the form of the Sonoma Marin Saving Water Partnership (SMSWP). As identified in **Table 2-2**, 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 Regional Alliance include: the City, Valley of the Moon Water District, City of Santa Rosa, Town of Windsor, City of Rohnert Park, City of Cotati, City of Petaluma, Marin Municipal Water District, and North Marin Water District. The City Board approved becoming a member of the Regional Alliance and using regional targets at its Board meeting on 1 March 2011.[6]

The DWR established three options for calculating a Regional Alliance water use target. The City, along with the other Water Contractors in the Regional Alliance, selected Option 1, which preserves maximum flexibility at the supplier level. Under Option 1, each member of the Regional Alliance calculates their individual targets and then weighs the individual targets by each member's population. The weighted targets are then averaged to determine the Regional Alliance Target. Detailed calculations conducted by the Regional Alliance are included in **Appendix E**. The Regional Alliance's 2015 Interim and 2020 Targets, as reported in the City's 2015 UWMP are provided in **Table 5-3** below.

[6] The letter approving the City's membership in the regional alliance: http://www.savingwaterpartnership.org/wp-content/uploads/20x2020-regional-alliance-agreement.doc.pdf

Table 5-3 DWR Regional Alliance

SB X7-7 RA1 - Weighted 2020 Target				
Participating Member Agency Name	**2020 Target GPCD***	**2015 Population**	**(Target) X (Population)**	**Regional Alliance Weighted Average 2020 Target**
Marin Municipal Water District	124	189,000	23,436,000	
North Marin Water District	139	61,381	8,531,959	
City of Petaluma	141	61,798	8,713,518	
City of Rohnert Park	119	41,675	4,959,325	
City of Santa Rosa	126	173,071	21,806,946	
City of Sonoma	180	11,147	2,006,460	
Valley of the Moon Water District	124	23,478	2,911,272	
Town of Windsor	130	27,486	3,573,180	
City of Cotati (Under Threshold)	130	7,288	947,440	
Regional Alliance Total	1,213	596,324	76,886,100	**129**
**All participating agencies must submit individual SB X7-7 Tables, as applicable, showing the individual agency's calculations. These tables are: SB X7-7 Tables 0 through 6 , Table 7, any required supporting tables (as stated in SB X7-7 Table 7), and SB X7-7 Table 9, as applicable. These individual agency tables will be submitted with the individual or Regional Urban Water Management Plan.*				
NOTES				

5.4 2020 Target Compliance

☑ ***CWC § 10608.24 (b)***

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

☑ ***CWC § 10608.24 (d)***

(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

☑ ***CWC § 10608.40***

Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

Table 5-4 demonstrates the City's compliance with its 2020 GPCD target. As summarized in **Table 3-1** and **Table 4-1**, the City's 2020 population was 11,725 and its 2020 water use was 2,174 acre-feet, which results in a daily gross per capita water use estimate of 166 GPCD. The City's 2020 actual GPCD is less than the target of 180 GPCD and the City is therefore in compliance with SB X7-7 requirements.

Table 5-4 2020 Compliance – City of Sonoma (DWR Table 5-2)

2020 GPCD			2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020?
Actual 2020 GPCD	2020 TOTAL Adjustments	Adjusted 2020 GPCD *(Adjusted if applicable)*		
166	0	166	180	Yes
NOTES:				

The Alliance's 2020 water use was 76,804 AF and the 2020 population was 604,607, which results in a gross daily per capita water use estimate of 113 GPCD. The Alliance is not seeking adjustments to its 2020 target and, as summarized in **Table 5-5**, is in full compliance with its 2020 target GPCD.

Table 5-5 SB X7-7 Regional Alliance – 2020 Compliance for the North Marin-Sonoma Alliance

2020 GPCD			2020 Confirmed Target GPCD	Did Alliance Achieve Targeted Reduction for 2020?
Actual 2020 GPCD	2020 TOTAL Adjustments	Adjusted 2020 GPCD *(Adjusted if applicable)*		
113	0	113	129	Yes
NOTES:				

6. 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 City of Sonoma (City). It includes a description of each water source, source limitations, water quality, and future opportunities for additional supply development. The City's water supplies presently come from a combination of imported water from Sonoma County Water Agency (SCWA) and, to a lesser degree, local groundwater pumped by the City from within and just north of the boundary of the Sonoma Valley Subbasin of the Napa-Sonoma Valley Groundwater Basin California Department of Water Resources [DWR] Basin No. 2-2.02. Each water supply is described further in the following sections.

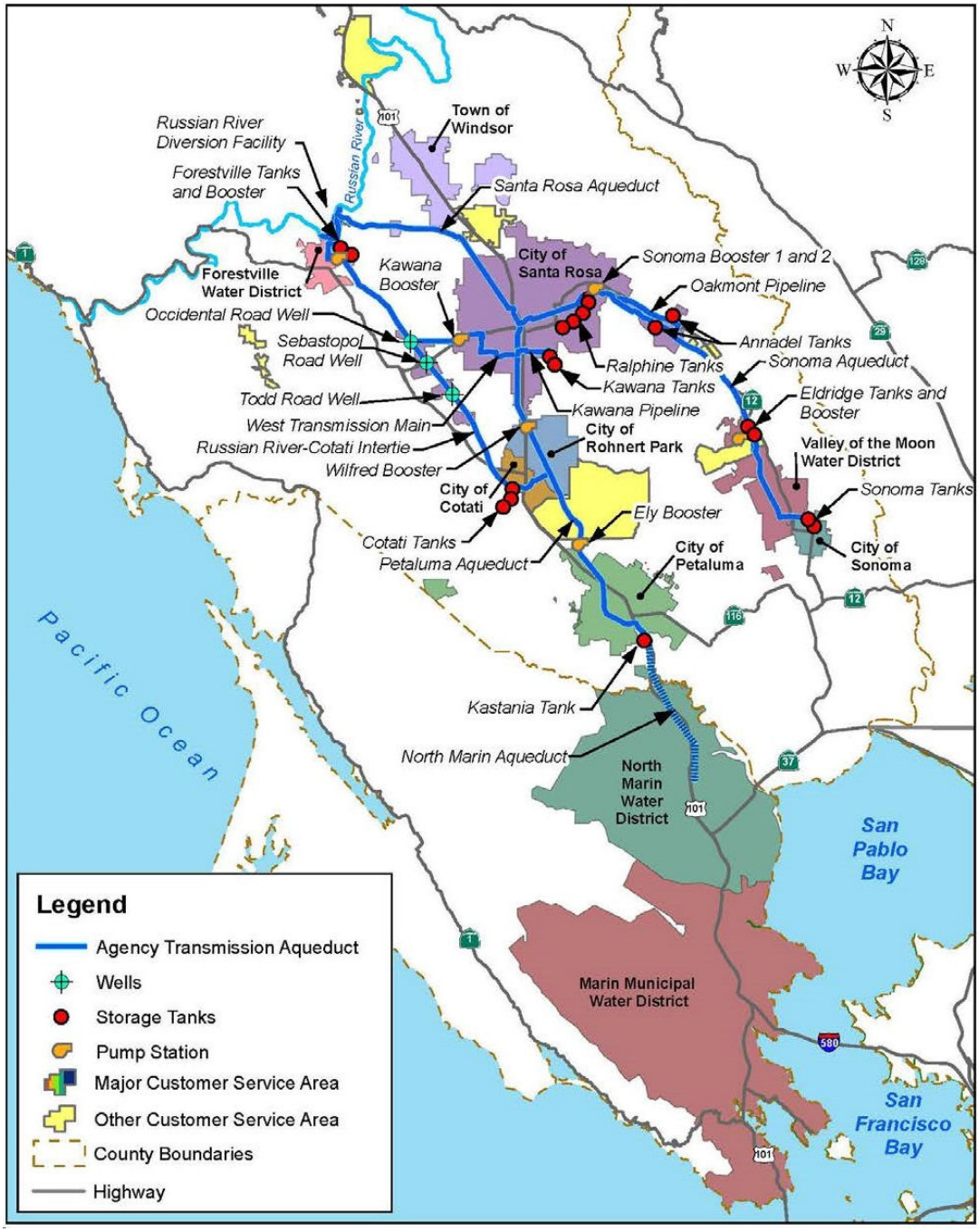
6.1 Purchased Water

☑ ***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 City receives its primary water supply from SCWA's transmission system (**Figure 6-1**) which provides treated water purchased from SCWA's Russian River Project. The Russian River flows are augmented by Pacific Gas and Electric's (PG&E's) Potter Valley Project, 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 (SCWA, 2016). As discussed further under Section 6.2, the SCWA supply also includes a relatively small amount of groundwater from groundwater supply wells located in the central Santa Rosa Plain Subbasin (SCWA, 2016).



Abbreviations

SCWA = Sonoma County Water Agency
UWMP = Urban Water Management Plan

Notes

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

Sources

Sonoma County Water Agency 2015 UWMP.

N

0 1.5 3

Miles

SCWA Service Area and Water Transmission System Facilities

City of Sonoma
June 2021
C00127.00

Figure 6-1

eki environment & water

Path: X:\C00127\Maps\2021\06\Fig6_1_SCWA.mxd

The City, along with other SCWA contractors, signed the Restructured Agreement for Water Supply (Agreement) in 2006. The Agreement provides for the financing, construction, and operation of diversion facilities, transmission lines, storage tanks, booster pumps, conventional wells, and appurtenant facilities. As described in Section 3.1 of this Agreement, SCWA:

> *…shall deliver to each Water Contractor* [i.e., each signatory to the Agreement] *at the points of delivery hereinafter set forth such quantities of water as the Water Contractor shall from time to time require at such rates of flow as are necessary to meet its peak day's demand, subject to the following:*
>
> *(a) SCWA shall not be obligated to deliver water in excess of the following:*

Water Contractor/ Aqueduct	*Average Daily Rate of Flow During Any Month*	*Annual Amount During Fiscal Year (Excluding Surplus Water)*
Sonoma From Sonoma Aqueduct	*6.3 million gallons per day*	*3,000 acre-feet*

6.1.2 Sonoma County Water Agency Surface Water Rights

According to SCWA's 2015 UWMP (SCWA, 2016), four water rights permits (Permits 12947A, 12949, 12950, and 16596) issued by the State Water Resources Control Board (SWRCB) authorize SCWA to store up to 122,500 acre-feet per year (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. The permits also establish minimum instream flow requirements for fish and wildlife protection and recreation. These minimum instream flow requirements vary based on the hydrologic classifications of normal, dry, and critical water supply conditions as defined by SCWA's water rights permits and SWRCB Decision 1610, adopted in 1986 (SCWA, 2016). SCWA meets the various instream flow requirements by making releases from Coyote Valley Dam and Warm Springs Dam (SCWA, 2016). The Russian River Biological Opinion requires modification of minimum instream flow requirements on the Russian River and Dry Creek to maintain the Incidental Take Statement provided by the Biological Opinion (SCWA, 2016). SCWA's evaluation of future Russian River supply availability is based upon the assumption that that proposed changes to the minimum instream flow requirements under Decision 1610 set forth in the Biological Opinion are implemented, and that SCWA will obtain water rights approvals necessary to increase its total Russian River diversions above 75,000 AFY by 2035 (SCWA, 2016). The SCWA 2015 UWMP anticipates that SCWA would request at that time an additional 1,000 AFY to increase the overall supply from the Russian River to 76,000 AFY.

6.1.3 Sonoma County Water Agency Groundwater Supply

SCWA 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 (SCWA, 2016). In 2015, groundwater made up less than 2 percent of SCWA's supplies; through 2045, groundwater is projected to make up 3 percent of SCWA's supplies in normal year conditions (SCWA, 2016). It cannot be discerned what specific amount of SCWA supply provided to the City consists of groundwater; however, it is assumed to be proportionate to the overall

percentage of groundwater used within SCWA's system. SCWA's groundwater supply is discussed further in Section 6.2.

6.2 Groundwater

☑ ***CWC § 10631***

(b) (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).

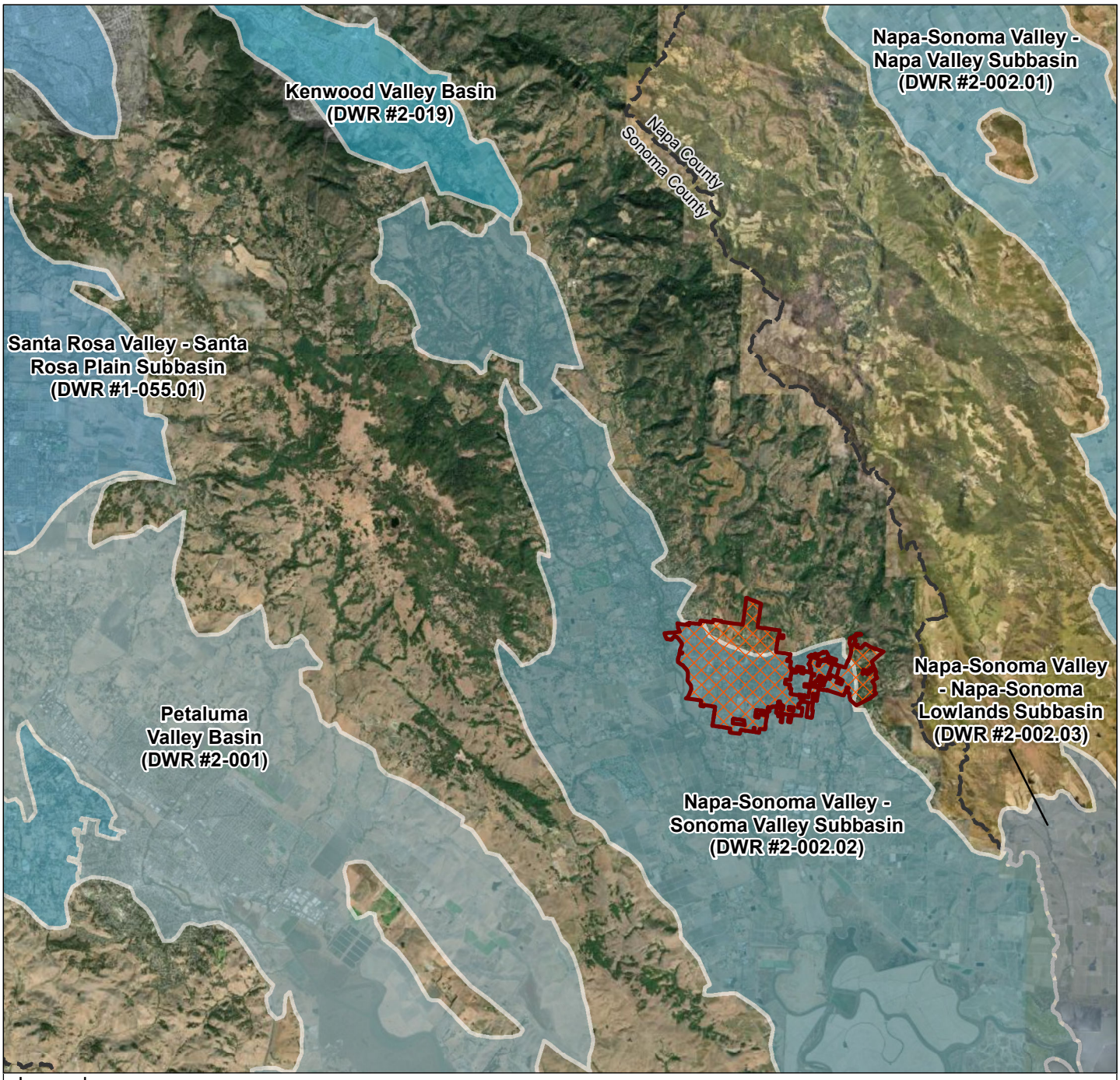
(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

The City's water supply is supplemented by local groundwater supply wells. In a normal water year, approximately 9 percent of the City's water supply is from local groundwater supply wells. This section includes information regarding the basin description, groundwater management, and coordination with the relevant Groundwater Sustainability Agency (GSA), followed by a discussion of historical pumping and supply sufficiency.

6.2.1 Basin Description and Status

6.2.1.1 *Sonoma Valley Subbasin (Local Groundwater Supply)*

The City overlies the Sonoma Valley Subbasin of the Napa-Sonoma Valley Groundwater Basin (DWR Basin No. 2-2.02). The Sonoma Valley Groundwater Basin is one of three Subbasins that drain south-southeast into San Pablo Bay (DWR, 2003). The Sonoma Valley Subbasin is not adjudicated, and the Basin is not in a condition of critical overdraft. **Figure 6-2** shows the groundwater basin and Subbasin areas.



Legend

- City of Sonoma Service Area
- County Boundary

Groundwater Basins

- Kenwood Valley
- Napa-Sonoma Valley - Napa Valley
- Napa-Sonoma Valley - Napa-Sonoma Lowlands
- Napa-Sonoma Valley - Sonoma Valley
- Petaluma Valley
- Santa Rosa Valley - Santa Rosa Plain
- Wilson Grove Formation Highlands

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 7 June 2021.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118-2016 Update.

N

0 2.5 5

(Scale in Miles)

Abbreviations

DWR = California Department of Water Resources

Regional Setting and Groundwater Basins

City of Sonoma
June 2021
EKI C00127.00
Figure 6-2

eki environment & water

Path: X:\C00127\Maps\2021\06\Fig6-2_GWBasinLocation_20210309.mxd

The Sonoma Valley Subbasin is designated as a high priority basin under DWR's 2019 Phase 2 Basin Prioritization (DWR, 2018). Under this prioritization process, basins are ranked on eight components, and if a basin is assigned more than 21 total points, it is defined as "high priority." The main factors driving the Basin's designation include the density of public supply wells (4 out of 5 possible points), the density of total wells (4 out of 5 possible points), irrigated acreage per square mile (3 out of 5 possible points), groundwater reliance (3 out of 5 possible points), and documented impacts including declining groundwater levels and subsidence (3 out of 5 possible points).[7]

As a DWR-designated high priority basin, the Sonoma Valley Subbasin is subject to the requirements of the Sustainable Groundwater Management Act (SGMA), including the requirement to be covered by one or more GSAs and to prepare and submit to DWR one or more Groundwater Sustainability Plans (GSPs) by 31 January 2022.

The Sonoma Valley Subbasin covers an area of approximately 44,626 acres (70 square miles) and occupies a northwest trending structural depression in the coastal mountain ranges immediately north of San Pablo Bay. The Subbasin is one of three Subbasins of the Napa-Sonoma Valley Groundwater Basin and is bonded on the west by the Sonoma Mountains and on the east by the Mayacamas Mountains. The Sonoma Valley Subbasin extends from San Pablo Bay northward to about 2 miles south of the town of Kenwood where the alluvial plain terminates. The principal stream draining the Subbasin is Sonoma Creek, which is tidally influenced from Schellville downstream to its mouth at San Pablo Bay (DWR, 2006).

Further description of the Subbasin is included in the draft Basin Setting chapter of the GSP for the Subbasin, including the hydrogeologic conceptual model, and current and historical groundwater conditions. Draft GSP chapters are available on the Sonoma Valley website: http://sonomavalleygroundwater.org/gsp/. Once the GSP has been submitted to DWR, the GSP is expected to be available on the DWR SGMA portal website: https://sgma.water.ca.gov/portal/gsp/all.

6.2.1.2 *Santa Rosa Plain Subbasin (SCWA Groundwater Supply)*

As noted in Section 6.1.3, a small portion of the SCWA water supply (i.e., less than 2 percent) is comprised of groundwater from the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin (DWR Basin 1-55.01). Given this, in accordance with CWC § 106319b), characteristics and groundwater management of the Santa Rosa Plain Subbasin are provided below.

The Santa Rosa Subbasin is not adjudicated, and in its recent evaluation of California groundwater basins, DWR determined that the 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).

Under DWR's prioritization process, basins are ranked on eight components, and if a basin is assigned more than 14 total points, but less than 21 total points, it is defined as "medium priority." The main factors driving the Santa Rosa Plain Subbasin's designation include population density (3 out of 5 possible ranking points), population growth (3 out of 5 possible points), public supply well density (5 out of 5 possible points), total production well density (5 out of 5 possible points), groundwater reliance (5 out of 5 possible points), and groundwater reliance (3 out of 5 possible points) (DWR, 2019).

[7] DWR's 2019 Phase 2 Basin Prioritization used the basin's total possible ranking points assigned to each of the eight components to determine the priority. A basin is defined as High Priority if it has more than 21 total ranking points.

As a DWR-designated high priority basin, the Santa Rosa Plain Subbasin is subject to the requirements of the SGMA, including the requirement to be covered by one or more GSAs and to prepare and submit to DWR one or more GSPs by 31 January 2022.

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. The shallow Alluvium consists of poorly sorted coarse sand and gravel and moderately-sorted fine sand, silt, and clay. The alluvial deposits are not perennially saturated, have low permeability, and are generally unconfined or slightly confined (DWR, 2006). The Glen Ellen Formation underlies the Alluvium and consists of partially cemented beds of poorly sorted gravel, sand, and silt, and clay that vary widely in thickness and extent, with thicknesses varying from 3,000 feet to less than 1,500 feet on the west side of the valley (DWR, 2006). Underlying the Glen Ellen Formation is the Merced Formation, which is a marine deposit of fine sand and sandstone with thin interbeds of clay and silty-clay and some lenses of gravel and localized fossils. The Merced Formation is Pliocene in age and its thickness is estimated to range from 300 feet to greater than 1,500 feet. Aquifer continuity and water quality in the Merced Formation are generally very good, with well yields from 100 to 1,500 gpm (DWR, 2006).

Further description of the Subbasin is included in the draft Basin Setting chapter of the GSP for the Subbasin, including the hydrogeologic conceptual model, and current and historical groundwater conditions. Draft GSP chapters are available on the Santa Rosa Plain GSA website: https://santarosaplaingroundwater.org/gsp/. Once the GSP has been submitted to DWR, the GSP is expected to be available on the DWR SGMA portal website: https://sgma.water.ca.gov/portal/gsp/all.

Actions related to management of the Sonoma Valley Subbasin and Santa Rosa Plain Subbasin both currently and under SGMA are described in the next sections.

6.2.2 Non-SGMA Groundwater Management

6.2.2.1 *Sonoma Valley Subbasin (Local Groundwater Supply)*

Prior to the passage of SGMA, a coalition of local stakeholders participated in the development of a Sonoma Valley Groundwater Management Plan (Sonoma Valley GMP), which was completed in 2007 (SCWA, 2007). This plan was prepared to inform and guide SCWA and other stakeholders in maintaining a sustainable, high-quality groundwater resource for the users of the groundwater basin underlying the Sonoma Valley. Stakeholders participating in the development of the Sonoma Valley GMP included SCWA, the City, Valley of the Moon Water District (VOMWD), and the Sonoma Valley County Sanitation District (SVCSD). Guidance for the Sonoma Valley GMP effort was provided by a Basin Advisory Panel (BAP), which included additional stakeholders including agricultural interests, local citizen groups, environmental groups, and business interests. Primary components of the Sonoma Valley GMP were grouped into several categories, including (1) stakeholder involvement, (2) groundwater monitoring, (3) groundwater quality protection, (4) groundwater sustainability, and (5) planning integration. The Sonoma Valley Plan identified a range of voluntary management actions, including groundwater recharge, groundwater banking, increased water use efficiency, and greater use of recycled water to reduce demand for groundwater.

The BAP held its last meeting in August 2016 and was replaced by the new Sonoma Valley Groundwater Sustainability Agency, described in Section 6.2.3.1 .

6.2.2.2 *Santa Rosa Plain Subbasin (SCWA Groundwater Supply)*

The Santa Rosa Plain Subbasin is currently managed under the Santa Rosa Plain Watershed Groundwater Management Plan (Santa Rosa Plain GMP), developed by the Santa Rosa Plain Advisory Panel (Santa Rosa Plain Advisory Panel, 2014). The stated goal of the Santa Rosa Plain GMP is "to proactively coordinate public and private groundwater management efforts and leverage funding opportunities to maintain a sustainable, locally-managed, high-quality groundwater resource for current and future users, while sustaining natural groundwater and surface water functions." The Santa Rosa Plain GMP outlines eighteen Basin Management Objectives and groups these into seven key management components, including: (1) stakeholder involvement and public awareness, (2) monitoring and modeling program, (3) groundwater protection, (4) increasing water conservation and efficiency, (5) increasing groundwater discharge, (6) increasing water reuse, and (7) integrated groundwater management. The Santa Rosa Plain GMP is the groundwater management program for this area, until the SGMA GSP for the Santa Rosa Plain Subbasin is adopted.

6.2.3 SGMA Groundwater Management

6.2.3.1 *Sonoma Valley Subbasin (Local Groundwater Supply)*

As discussed in Section 6.2.1.1 , the Sonoma Valley Subbasin is designated by DWR as a high priority basin (DWR, 2019). As such, the Sonoma Valley Subbasin is subject to the requirements of SGMA, which include the formation of a one or more GSAs and the development and implementation of one or more GSPs.

The Sonoma Valley Groundwater Sustainability Agency (Sonoma Valley GSA) was formed in June 2017 through a Joint Powers Agreement entered into by the County of Sonoma, the City, VOMWD, Sonoma Resource Conservation District, SCWA, and North Bay Water District. The Sonoma Valley GSA is governed by six board members and alternates from the six member organizations, which each appoint one member and one alternate member. The Board of Directors is advised by an Advisory Committee of 12 members consisting of six at-large members appointed by the six member agencies, and six interest-based members appointed by the Sonoma Valley GSA Board of Directors, representing various other stakeholders.

The GSP for the Sonoma Valley Plain Subbasin is currently under preparation and is anticipated to be complete and submitted to DWR by the statutory deadline of 31 January 2022. As of March 2021, initial drafts of sections describing the plan area and portions of the basin setting have been prepared and are available for public review on the Sonoma Valley GSA website: http://sonomavalleygroundwater.org/gsp/.

6.2.3.2 *Santa Rosa Plain Subbasin (SCWA Groundwater Supply)*

As discussed in Section 6.1.3, the Santa Rosa Plain Subbasin is designated by DWR as a medium priority basin (DWR, 2019). As such, the Santa Rosa Plain Subbasin is subject to the requirements of SGMA, which include the formation of a 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 the SCWA, 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 Santa Rosa Plain GSA is governed by a nine-member Board of Directors, which includes a position held by SCWA. The Board of Directors is advised by an Advisory Committee that includes eighteen members appointed by the Board of Directors, representing various stakeholders. The GSP for the Santa Rosa Plain Subbasin is currently under preparation and is anticipated to be complete and submitted to DWR by the statutory deadline of 31 January 2022. As of March 2021, initial drafts of sections describing the plan area and portions of the basin setting have been prepared and are available for public review on the Santa Rosa Plain GSA website: https://santarosaplaingroundwater.org/.

6.2.4 Coordination with Groundwater Sustainability Agencies

The City is a member of the Sonoma Valley GSA and has been actively involved in GSP development activities and will continue to be involved throughout SGMA implementation. The City of Sonoma has one Director and one alternate member on the Sonoma Valley GSA Board of Directors, as well as one appointee on the Advisory Committee. The Board of Directors meet every two months, while the advisory committee meets every month to provide input and recommendations to the Board of Directors on GSP development, implementation, and policies. Both the Board of Directors and the Advisory Committee receive input from a number of administrative and technical staff, as well as legal and financial consultants.

The City is not directly involved with the Santa Rosa Plain GSA. However, as noted above, the SCWA is a member of Santa Rosa Plain GSA and the City has coordinated with SCWA on its demand projections through 2045.

6.2.5 Historical Pumping and Supply Sufficiency

The City uses its local groundwater supply wells to help meet demand. It is the City's intent to use its wells to meet peak summer month demands rather than on a year-round basis. The City currently extracts groundwater from a total of six active local wells located just north of the Sonoma Valley Subbasin boundary. The City owns two additional wells, Well 5 and Well 7, but does not run them due to poor water quality, poor well condition, and/or permitting issues. The total estimated capacity is approximately 1,225 gpm. Well 5 is available for use as an emergency standby well, and can be used for up to 15 days out of each year with proper notification to the California Department of Public Health (CDPH). **Table 6-1** lists the amount of groundwater pumped by the City over the past five years. The City pumped an average of 178 AF per year over the 5-year time period between 2016 and 2020, and maximum of 276 AF in 2019. The available groundwater supply and the purchased water supply have been sufficient to meet all of the City's demands in the past five years and all prior years, as a supplement to SCWA purchases.

Section 7.2.1 presents an analysis of the City's available supplies based on historical purchased water and local groundwater use and review of available information regarding future supply availability to the City, accounting for the impacts of SGMA. Based on the available information, the available groundwater supply and the purchased water supply are expected to be sufficient to meet the projected future demands of the City in normal and multiple dry year periods through 2045.

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

	Supplier does not pump groundwater. The supplier will not complete the table below.					
	All or part of the groundwater described below is desalinated.					
Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	Sonoma Valley Groundwater Subbasin, Napa-Sonoma Valley Groundwater Basin	196	147	63	276	209
	TOTAL	196	147	63	276	209

NOTES:
(a) Volumes are in units of AF.
(b) The Sonoma Valley Groundwater Subbasin is an alluvial basin that includes areas of fractured volcanic rock. The City pumps primarily from fractured rock zones just north of the basin boundary.

6.3 Surface Water

As described above in Section 6.1, the City purchases surface water from SCWA as its primary water supply.

6.4 Stormwater

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

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 City. The amount of recycled water currently used, potentially available, and future potential uses for recycled water for the City are also described.

6.5.1 Recycled Water Coordination

The City does not currently utilize recycled water, but a recycled water distribution system is currently being constructed and is expected to be online during the first half of 2021 and will utilize recycled water produced by the SVCSD. The first phase of the new recycled water program will be to supply approximately 50 AFY to the Sonoma Valley Unified School District for irrigation use in 2021. By 2025, it is anticipated that an additional 5 AFY will be used by a city park for irrigation purposes. Extension of recycled water pipelines to other properties is anticipated to be a later phase of the project, but the schedule and volumes associated with this expansion are not currently known.

The City has been in discussion with various agencies regarding the potential use of recycled water in the City's service area. Those agencies include the SCWA, the SVCSD, and the VOMWD.

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.

SVCSD provides wastewater collection, treatment, disposal, and water recycling services for the City's service area, and other areas in the Sonoma Valley, including within the boundaries of the City of Sonoma. The SVCSD reclamation facility provides tertiary treatment for a permitted average dry-weather flow capacity of 3 mgd. The current average dry-weather flow of the SVCSD reclamation facility is 2.7 mgd, and the average winter peak flow is 22 mgd.

Treated wastewater is currently used to restore the Napa Salt Marsh, is discharged to the San Pablo Bay via Schell and Hudeman Slough, or is reused in the southern part of the Sonoma Valley. Current reuse of wastewater treated by SVCSD includes vineyard and pasture irrigation, water for construction, and a small amount of water used for residential landscape irrigation. In recent years, the SVCSD has explored the feasibility of expanding recycled water use to offset local groundwater pumping or imported Russian River water in addition to reducing or eliminating discharges to San Pablo Bay.

Table 6-2 identifies the volume collected within the City's service area by SVCSD.

Table 6-2 Wastewater Collected Within Service Area in 2020 (DWR Table 6-2)

	There is no wastewater collection system. The supplier will not complete the table below.
	Percentage of 2020 service area covered by wastewater collection system *(optional)*
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*

Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party? *(optional)*
Sonoma Valley County Sanitation District	Estimated	945	Sonoma Valley County Sanitation District	Sonoma Valley Wastewater Treatment Plant	No	
Total Wastewater Collected from Service Area in 2020:		945				

NOTES:
(a) The wastewater volume was estimated to be 90% of the lowest monthly water demand, adjusting for a total of 12 months.
(b) Volumes are in units of AF.

Wastewater is collected from the City's service area by SVCSD and treated and disposed of outside of the City's service area. Therefore, as indicated in **Table 6-3**, the City has not completed DWR Table 6-3.

Table 6-3 Wastewater Treatment and Discharge Within Service Area in 2020 (DWR Table 6-3)

X	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2020 volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
						Total					
NOTES: (a) Volumes are in units of AF.											

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.

SVCSD is in the final stages of constructing a recycled water pipeline in collaboration with the Sonoma Valley Unified School District to provide recycled water for irrigation purposes to Sonoma Valley High School, Adele Harrison Middle School, and Prestwood Elementary schools. Recycled water will also be used in the future to offset irrigation demands at the City of Sonoma's Engler Street Park (anticipated to be online by 2025), and there will be future opportunities for agricultural users along the pipeline route to connect to the system.

The 5th Street East Recycled Water Pipeline Project consists of approximately 7,000 linear feet of up to 10-inch diameter recycled water pipeline extending east from the intersection of Watmaugh Road at Shainsky Road to Fifth Street East, then north on Fifth Street East to Denmark Street. Along Denmark Street, approximately 1,300 linear feet of 8-inch diameter recycled water pipeline has been installed to the back of Sonoma Valley High School campus and approximately 400 linear feet of 4-inch diameter pipeline along Engler Street to Engler Street Park. On completion of the project during the first half of 2021, the pipeline delivers recycled water to the sports fields at Sonoma Valley High School and Adele Harrison Middle School, with irrigation water expected to be provided to Engler Street Park in the future, pending completion of permitting.

As of the end of 2020, there was no recycled water use in the City's service area. However, by 2021, the SVCSD made recycled water available for use by the City. Approximately 50 AF will be delivered to the Sonoma Valley Unified School District per year, and 5 AFY will be delivered to the Sonoma Valley Oaks Park on Engler Street.

Table 6-4 identifies the current and projected recycled water direct uses within the City's service area by beneficial use type. This includes projected uses by the Sonoma Valley Unified School District and Sonoma Valley Oaks Park on Engler Street. Additional future use and timing of recycled water (e.g., by agricultural users) cannot be estimated at this time.

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4)

	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.
Name of Supplier Producing (Treating) the Recycled Water:	SVCSD
Name of Supplier Operating the Recycled Water Distribution System:	SVCSD
Supplemental Water Added in 2020 (volume)	0
Source of 2020 Supplemental Water	N/A

Beneficial Use Type	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity)	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045
Landscape irrigation (excludes golf courses)	School and city park irrigation	AFY	Irrigation	Tertiary	0	55	55	55	55	55
				Total:	0	55	55	55	55	55
				2020 Internal Reuse	0					

NOTES:
(a) Volumes are in units of AF.

6.5.4 Comparison of Previously Projected Use and Actual Use

☑ *CWC § 10633 (e)*

A description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

Table 6-5 provides a comparison of the City's 2015 UWMP projection for 2020 recycled water demand to actual 2020 water use by the recycled water system.

The City's 2015 UWMP projected demand for recycled water in 2020 to be 55 AF. Actual water use by the recycled water system in 2020 was 0 AF due to the fact that the construction of the recycled water distribution system was delayed beyond what was anticipated at the time of the 2015 UWMP. However, the construction of the recycled water system is now nearing completion, and the recycled water system is expected to be operational during the first half of 2021.

Table 6-5 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual (DWR Table 6-5)

	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below.	
Beneficial Use Type	2015 Projection for 2020	2020 Actual Use
Landscape irrigation (excludes golf courses)	55	0
Total	55	0

NOTES:
(a) Volumes are in units of AF.
(b)The 2015 UWMP anticipated recycled water would be in use by 2017, however implementation was delayed. Construction is nearly complete and is anticipated that recycled water deliveries will begin in Spring 2021.

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

☑ ***CWC § 10633 (e-g)***

(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.

As noted above, the City expects that 50 AF of recycled water use will be online during the first half of 2021 and a total of 55 AFY by 2025. The City anticipates utilizing recycled water for landscape irrigation usage to offset groundwater pumping.

In 2018, the City prepared a Recycled Water Feasibility Analysis to explore opportunities to expand the recycled water system within the City's service area, with a focus on extending recycled water use to the northern portion of the City (GHD, 2018a). In this Recycled Water Feasibility Analysis, potential opportunities for expanding recycled water use to the Sonoma Plaza, Depot Park, Veterans Cemetery, Field of Dreams, Armstrong Park, and other landscape areas were identified, and a potential alignment for an extended recycled pipeline was described, with a potential additional recycled water demand of between 64 and 76 AFY. The construction of such a recycled water system extension will be dependent upon future identification of funding opportunities for the project, and thus is not included in the projected recycled water use presented herein.

The SVCSD received funding from the Bureau of Reclamation, U.S. Department of Interior American Recovery and Reinvestment Act of 2009 through the Bureau of Reclamation, Title XVI Program. These funds have been used for the detailed design and ongoing construction of the recycled water system in the City of Sonoma. **Table 6-6** provides a summary of estimated recycled water use that are expected to be realized by implementing these methods to encourage recycled water use.

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

	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
Financial incentives	Delivery of recycled water to Sonoma Valley Unified School District.	2021	50
Financial incentives	Delivery of recycled water to Engler Street Park	2025	5
		Total	55
NOTES: (a) Volumes are in units of AF.			

6.6 Desalinated Water

☑ ***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.

The City is located within approximately 15 miles of San Pablo Bay, so desalination of bay water could be a possibility in the future. Marin Municipal Water District (MMWD), also located in the North Bay region of the San Francisco Bay Area, previously performed a study exploring desalination as a potential supply option, although MMWD does not currently intend to pursue desalination further. Although the opportunity exists to explore this option further in the future, it is currently not included in this Plan as a future water supply source.

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.

Although the City does not currently transfer or exchange water with other entities, water transfers between SCWA's Water Contractors are authorized under the Restructured Agreement.[1] Such transfers

[1] The Restructured Agreement can be accessed at the following link: https://evogov.s3.amazonaws.com/185/media/181899.pdf.

and exchanges between SCWA Water Contractors have been necessary in the past and may be necessary in the future to improve water supply reliability. The City does not include water transfers in the water supply projections presented in this Plan because they will be pursued on an as-needed basis.

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 City is working with the SCWA, VOMWD, and other interested participants to evaluate the technical feasibility of aquifer storage and recovery (ASR) as a method for groundwater banking. In Fall 2018, a pilot project was completed in the City of Sonoma to verify and empirically determine specific hydrogeologic and water quality factors. Next steps include a technical and economic viability assessment of ASR technology in the region. During 2018, a 6-month ASR pilot test was performed to evaluate the technical feasibility of ASR in the region, with results indicating that a full-scale ASR project may be feasible. Additional testing of ASR feasibility is expected to be performed in the future, with test results to be used to complete environmental documentation and design for a full-scale ASR project in the region.

The City evaluates its well system and the yield and condition of its wells on an ongoing basis. The City's Water System Master Plan (GHD, 2018b) recommended the installation of a new groundwater supply well, Well 9, to serve as a backup well to help maintain capacity during emergency conditions. A location for this well has not been secured but would most likely be located in the general area north of West Spain Street. The schedule for construction of this well will be dependent on identification of funding, although it is anticipated that the well will be constructed prior to 2025. It should be noted that the intent of this new well is to maintain the reliability of the City's current pumping capacity, rather than to expand its current groundwater pumping capacity.

Future projects that may contribute to the City's water supply are summarized in **Table 6-7.**

Table 6-7 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.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier
	Y/N	*If Yes, Supplier Name*				
New Groundwater Well	No			2025	Single-Dry and Multi-Dry Year	0
NOTES: (a) Volumes are in units of AF.						

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) (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.*

The City purchases potable water from the SCWA to meet the majority of the water demands within the City's service area. In 2020, the City purchased approximately 1,965 AF of water from SCWA. The remainder of the City's water supply was obtained from local production of groundwater. In 2020, the City produced 209 AF of groundwater. The City's water supplies in 2020 are summarized in **Table 6-8**.

Table 6-8 Water Supplies - Actual (DWR Table 6-8)

Water Supply	Additional Detail on Water Supply	Actual Volume					Water Quality	Total Right or Safe Yield *(optional)*
		2016	2017	2018	2019	2020		
Purchased or Imported Water	SCWA Purchases	1,542	1,852	2,012	1,795	1,965	Drinking Water	--
Groundwater (not desalinated)	Local Production	196	147	63	276	209	Drinking Water	--
Total		1,738	1,999	2,075	2,071	2,174		--
NOTES: (a) Volumes are in units of AF.								

The City plans to continue to purchase water from SCWA, while monitoring its production of groundwater. The City does not anticipate developing additional long-term water supplies from other sources in the near future. Water supplies from the SCWA through 2045 are projected to be equivalent to the City's annual entitlement of 3,000 AFY, established in the Restructured Agreement and effective through 2037. The City's total water supply projections are shown in **Table 6-9** in five-year increments through 2045. **Table 6-9** summarizes the projected source and water supply volume in five-year increments over the next 25 years.

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

Water Supply	Additional Detail on Water Supply	Projected Water Supply									
		2025		2030		2035		2040		2045	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Purchased or Imported Water	SCWA Purchases	3,000	--	3,000	--	3,000	--	3,000	--	3,000	--
Groundwater (not desalinated)	Local Production	238	--	238	--	238	--	238	--	238	--
Recycled Water	Sonoma Valley County Sanitation District	55	--	55	--	55	--	55	--	55	--
Total		3,293	--	3,293	--	3,293	--	3,293	--	3,293	--
NOTES: (a) Volumes are in units of AF.											

6.10 Special Conditions

6.10.1 Climate Change Effects

As discussed in SCWA's Draft 2020 Urban Water Management Plan (SCWA, 2021), SCWA has been evaluating the effects of climate change. As stated by SCWA:

> *Sonoma Water has investigated whether existing 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. As of this time, no detailed analysis exists of potential climate change impacts that takes into consideration the influence of marine layers, whose effects on the region are difficult to model. Given the uncertainties between various downscaled models, Sonoma Water evaluates ensembles of downscaled models for general water supply planning purposes. However, there is not one model that can be selected with any confidence to be analyzed for the required format of this Plan. For these reasons, this Plan assumes that the climatic patterns and associated hydrology experienced over the past 108 years of record (1910 – 2017) 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.*
>
> *As discussed in Section 5.9, however, the United States Geological Survey (USGS) conducted a study for Sonoma Water on the potential effects of climate change on Sonoma Water's water supply, which has provided additional information on the potential impacts of climate change on Sonoma Water's service area. Furthermore, Sonoma Water has embarked on development of a Climate Adaptation Plan which studies the potential impacts of climate change in regards to both water supply reliability and Sonoma Water's transmission system facilities. This planning process analyzes the results of multiple climate models to determine a range of potential climate related impacts. A risk based analysis of the potential impacts to the watershed and Sonoma Water facilities will be used to identify courses of action that can be pursued to mitigate the effects of climate change. The work plan was developed in 2015 and a robust planning process began in 2016. Sonoma Water expects to bring the Climate Adaptation Plan to its Board for approval in summer 2021.*

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. As of March 2021, the water budget sections have not yet been developed by the Sonoma Valley GSA but are expected to include consideration of the effects of climate change for groundwater sustainability planning purposes.

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. The City does not have any current plans to develop additional supply sources other than construction of a new water supply well. If the City does move 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). The City does not have any current plans to develop additional supply sources other than the construction of a new water supply well. If the City does move forward with any plans to develop supply projects, locally applicable criteria will be considered, and the associated water supply reliability impacts will be assessed in future UWMP updates.

6.11 Energy Consumption

☑ ***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.

Within the service area, the City uses energy to distribute water supplies through its distribution systems. The City's distribution systems include seven active groundwater wells (Wells 1 to 6 and Well 8[1]) and two pump stations, which are the Norrbom Tank Pump Station and Thornsberry Tank Pump Station. The energy used by these facilities is metered and documented in monthly Pacific Gas & Electric (PG&E) bills. In 2020, the City used 212,834 kWh of energy to operate the water supply system and deliver 2,174 AFY of water to customers in the service area (**Table 6-10**). SCWA uses energy to treat and distribute water before delivery to the City. However, the energy is used outside of the City's service area, and the energy consumption information is not typically shared with the City.

[1] Well 5 was standby only and Well 6 was inactive in 2020.

Table 6-10 Recommended Energy Intensity - Total Utility Approach (DWR Table O-1B)

Urban Water Supplier: *City of Sonoma*

Water Delivery Product

Retail Potable Deliveries

Enter Start Date for Reporting Period	1/1/2020	Urban Water Supplier Operational Control		
End Date	12/30/2020			
Is upstream embedded in the values reported?		Sum of All Water Management Processes	Non-Consequential Hydropower	
Water Volume Units Used	AF	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*2,174*	*0*	*2,174*
Energy Consumed (kWh)		*212,834*	*0*	*212,834*
Energy Intensity (kWh/volume)		*97.9*	*0.0*	*97.9*

Quantity of Self-Generated Renewable Energy

kWh

Data Quality

Data Quality Narrative:

Narrative:

7. WATER SERVICE RELIABILITY AND DROUGHT RISK 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 City of Sonoma's (City's) water supplies. Assessment of water supply reliability is complex and dependent upon a number of 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 City has made its best determination of future water supply reliability for the City, as described below.

7.1 Water Service Reliability Assessment

Purchased water from Sonoma County Water Agency (SCWA or Sonoma Water) and local groundwater are the primary supply sources for the City. Potential constraints on future purchased water availability have been identified, including water quality and climate change. These constraints, along with associated management strategies, are summarized in the following sections.

7.1.1 Service Reliability - Constraints on Water Sources

Surface Water

The water available to SCWA's customers is constrained by both physical and legal constraints. The capacity of SCWA's transmission system is a physical constraint that can limit the City's water supply from SCWA. The City receives the SCWA supply through the Sonoma Aqueduct facilities located south of the Oakmont community in Santa Rosa, which serves both the Valley of the Moon Water District (VOMWD) and the City. The main booster pump station for the Sonoma Aqueduct is the Sonoma Booster Pump Station which is located on the east side of Spring Lake. A minor booster pump station is the Eldridge booster pump station located near Glen Ellen, which is typically off-line.

Legal constraints include the Restructured Agreement for Water Supply (Agreement), SCWA Water Rights, and the Russian River Biological Opinion. These legal constraints are described below.

- The Agreement includes specific maximum amounts of water that SCWA is obligated to supply to its Water Contractors, including the City. The Agreement states that SCWA is not obligated to provide the City with more than 3,000 acre feet per year (AFY) or more than 6.3 million gallons per day (mgd) as an average flow during any single month.

- Four State Water Resources Control Board (SWRCB) permits (SWRCB Permit Numbers 12947A, 12949, 12950, and 1596) currently authorize SCWA to store water in Lake Mendocino (122,500 AFY) on the East Fork Russian River and Lake Sonoma (245,000 AFY) on Dry Creek, and to divert and redivert 180 cubic feet per second (cfs) of water from the Russian River, up to 75,000 AFY. SCWA estimates the existing annual diversion and rediversion limit of 75,000 AFY will be exceeded by 2035 (NMWD, 2016). Consequently, SCWA will need to file an application to SWRCB by around 2030 to increase its annual diversion and rediversion limit (NMWD, 2016). The permits also establish minimum instream flow requirements for fish and wildlife protection as well as for recreational considerations. These minimum instream flow requirements vary according to the hydrologic cycle as defined by SWRCB Decision 1610. SCWA meets the Decision 1610 flow requirements by making releases from Coyote Valley Dam at Lake Mendocino and Warm Springs Dam at Lake Sonoma (NMWD, 2016).
- On 24 September 2008, the National Marine Fisheries Service (NMFS) issued a 15-year biological opinion for water supply, flood control operations, and channel maintenance conducted by the U.S Army Corps of Engineers (USACE), SCWA, and Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed. The Russian River Biological Opinion (Biological Opinion) concluded that the elevated river flows required by Decision 1610 were adversely affecting fish habitat and listed alternatives to reduce the effects. The alternatives included:
    - Reducing summertime flows in the Russian River and Dry Creek;
    - Enhancing six miles of habitat in Dry Creek;
    - Creating a freshwater lagoon in the estuary during summer months;
    - Monitoring both habitat and fish in the Dry Creek, the estuary, and the Russian River; and
    - Eliminating impediments to fish spawning or improving habitat in several streams.
- The Biological Opinion requires that summertime flows be permanently reduced to replicate river conditions in dry years. Since the biological opinion was released, SCWA has submitted a petition to the SWRCB requesting permanent changes to Decision 1610 minimum flow requirements in line with the Biological Opinion and is preparing an Environmental Impact Report (EIR) required by the California Environmental Quality Act (CEQA). Since 2010, SCWA has requested temporary changes to the Decision 1610 minimum flows annually based on the Biological Opinion recommendations.

In addition to these projects, SCWA is currently evaluating the feasibility of groundwater banking as a method of increasing water supply reliability. A Groundwater Banking Feasibility Study was completed in 2012. SCWA worked with the City of Sonoma to implement a pilot study using one of the City of Sonoma's municipal supply wells (SCWA, 2016).

Local Groundwater

As noted in Section 6.2.5, the City currently has six active local supply wells, and two wells that are inactive due to groundwater quality, well condition, and/or permitting issues. In recent years, four wells have been used to supplement the purchased water supply from SCWA.

Drawdown pumping tests and well analyses were conducted for Wells No. 1, 3, 4 and 6 in 2009 where the pumping capacity for each well was evaluated. The evaluation was conducted to identify pumping rate constraints on each well. These constraints considered the well construction, pumping equipment and well interference between the City's active supply wells. Based on historical groundwater elevation data, the aquifer recharges fully during the winter months and historic operation of the City's supply wells has not caused a condition of sustained aquifer overdraft. In the future, it is expected that the increased frequency of use of the City's supply wells could result in localized depression of the groundwater elevation in the pumping area during the four-month pumping season but water levels should recover during the winter months.

In normal and wet years, the total volume of pumping is expected to be relatively small, on the order of 60 to 90 AFY. During periods of drought or under conditions where SCWA is unable to meet their water deliveries, higher pumping rates from the City's supply wells is planned. Some of the City's wells are located relatively close together, and if pumped simultaneously, extract groundwater from the same portion of the aquifer which can induce larger depressions in groundwater elevation. In order to efficiently extract groundwater from the aquifer, the City typically prefers to stagger the operation of adjacent wells to provide for appropriate aquifer recovery and avoid pumping interference effects.

Assuming that the City does not develop additional wells, the total estimated capacity of the City's wells is projected to be 367 AFY and the total safe yield of the City's wells is projected to be 238 AFY, based on the City's 2018 Water Master Plan Update.

Historically, the groundwater supplies available to the City from the underlying Sonoma Valley Subbasin along with imported supply from SCWA have always been sufficient to meet City demands. From a regional and Subbasin-wide standpoint, the City pumping is only a small fraction of total groundwater pumping. While the water budget portion of the Sonoma Valley Subbasin Groundwater Sustainability Plan (GSP) is not yet available as of March 2021, according to the Sonoma Valley Groundwater Management Program Five-Year Review and Update, municipal pumping constituted 5 percent of overall pumping in the Subbasin (SCWA, 2014). Approximately 52 percent of pumping was for irrigated agriculture, 29 percent for rural domestic pumping, 7 percent for irrigation of golf courses and parks, and 7 percent for small commercial water systems and mutual/private water systems. It is therefore likely that management of the Subbasin to reach sustainability will include all stakeholders, including municipal pumpers. As a member of the Sonoma Valley Groundwater Sustainability Agency (GSA), the City will continue to be actively involved in all groundwater management actions and decisions and will be able to incorporate these activities into their future supply planning efforts.

7.1.2 Water Quality Impacts on Reliability

Impaired water quality has the potential to affect water supply reliability. A summary of groundwater quality in the Sonoma Valley Subbasin is included in the draft GSP materials available on the Sonoma Valley GSA website: http://sonomavalleygroundwater.org/gsp/. It should be noted that water quality conditions in groundwater represent conditions for source water, prior to treatment by the City and service to customers.

The City has and will continue to meet all state and federal water quality regulations. All drinking water standards are set by the United States. Environmental Protection Agency (USEPA) under the authorization of the Federal Safe Drinking Water Act of 1974. In California, the State Water Resources Control Board (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 California Code of Regulations. 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 account 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 City 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 City's website at https://www.sonomacity.org/water-quality-reports/.

As previously noted, the City owns two additional wells that are not currently operated due in part to water quality issues. Groundwater from these two wells contain arsenic and/or boron at concentrations that are near or just above the primary MCLs. These wells are therefore not operated and are not planned to be operated in the future except in a short-term water supply emergency in which case the water from the wells would be tested to ensure primary MCLs are met.

Given the City's proactive monitoring and management of water quality in its source water supplies, water quality is not expected to impact the reliability of the City's available supplies within the planning horizon (i.e., through 2045).

7.1.3 Climate Change Impacts to Supply

☑ ***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.

Section 4.4 of this Urban Water Management Plan (UWMP or Plan) presents information on how the impacts of climate change are considered in projected demands in the City, and Section 6.10.1 provides a summary of potential climate change impacts on supplies. The GSP water budget development is required to include climate change scenarios and assess estimated climate change impacts for purposes of groundwater sustainability but are not yet available for the Sonoma Valley or Santa Rosa Plain Subbasins.

As discussed in Section 6.10.1, SCWA is developing the Climate Adaptation Plan to study the impact of climate change on water supply reliability and SCWA's transmission system facilities. The City will review the Climate Adaptation Plan when it is released and incorporate it in the next UWMP.

7.2 Service Reliability - Year Type Characterization

☑ ***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.

Per the UWMP Guidebook 2020, the water service reliability assessment includes three unique year types:

- A normal hydrologic year represents the water supplies available under normal conditions, this could be an averaged 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 UWMP Guidebook 2020 methodology is provided below.

7.2.4 Purchased Water

The projected availability of purchased water supplies by year type are provided in **Table 7-1** and **Table 7-2** below.

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

Year Type	Base Year	Available Supplies if Year Type Repeats	
		X	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location **Table 7-2**, **Table 7-3**, and **Table 7-4**
		---	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year			100%
Single-Dry Year			
Consecutive Dry Years 1st Year			
Consecutive Dry Years 2nd Year			
Consecutive Dry Years 3rd Year			
Consecutive Dry Years 4th Year			
Consecutive Dry Years 5th Year			
NOTES: (a) Volumes are in units of AF.			

Table 7-2 Projected Availability of SCWA Supply (Responds to DWR Table 7-1)

Year Type		2025	2030	2035	2040	2045
Normal Year		3,000	3,000	3,000	3,000	3,000
Single-Dry Year		3,000	2,523	2,498	2,471	2,441
Extended Drought	First year	3,000	3,000	3,000	3,000	3,000
	Second year	3,000	3,000	3,000	3,000	3,000
	Third year	3,000	3,000	3,000	3,000	3,000
	Fourth year	3,000	3,000	3,000	3,000	3,000
	Fifth year	3,000	3,000	3,000	3,000	3,000
NOTES: (a) Dry year supplies from SCWA were estimated based on the total supply shortfall in dry years. (b) Volumes are in units of AF.						

7.2.1 Local Groundwater

The projected availability of local groundwater supplies by type are provided in **Table 7-3** below. Supply availability for local groundwater is assumed to not be impacted in dry years. The City anticipates using groundwater to the extent that it is replenished without impacting long-term groundwater levels.

Table 7-3 Projected Availability of Local Groundwater Supply (Responds to DWR Table 7-1)

Year Type		2025	2030	2035	2040	2045
Normal Year		238	238	238	238	238
Single-Dry Year		238	238	238	238	238
Extended Drought	First year	238	238	238	238	238
	Second year	238	238	238	238	238
	Third year	238	238	238	238	238
	Fourth year	238	238	238	238	238
	Fifth year	238	238	238	238	238
NOTES: (a) Volumes are in units of AF.						

7.2.2 Recycled Water

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

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

Year Type		2025	2030	2035	2040	2045
Normal Year		55	55	55	55	55
Single-Dry Year		55	55	55	55	55
Extended Drought	First year	55	55	55	55	55
	Second year	55	55	55	55	55
	Third year	55	55	55	55	55
	Fourth year	55	55	55	55	55
	Fifth year	55	55	55	55	55
NOTES: (a) Volumes are in units of AF.						

7.3 Service Reliability - 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.

Water supply and demand patterns change during normal, single dry, and multiple dry years. **Table 7-5** shows the projected supply and demand totals for a normal year. The supply and demand totals are consistent with those in **Table 6-9** and **Table 4-3**, respectively. **Table 7-6** shows the projected supply and demand totals for the single dry year, and **Table 7-7** shows the projected supply and demand totals for multiple dry year periods extending five years.

Table 7-5 Normal Year Supply and Demand Comparison (DWR Table 7-2)

	2025	2030	2035	2040	2045
Supply totals *From DWR Table 6-9*	3,293	3,293	3,293	3,293	3,293
Demand totals *From DWR Table 4-3*	2,273	2,299	2,302	2,318	2,338
Difference	1,020	994	991	975	955
NOTES: (a) Volumes are in units of AF.					

Table 7-6 Single Dry Year Supply and Demand Comparison (DWR Table 7-3)

	2025	2030	2035	2040	2045
Supply totals	3,293	2,816	2,791	2,764	2,734
Demand totals	2,273	2,299	2,302	2,318	2,338
Difference	1,020	517	489	446	396
NOTES: (a) Volumes are in units of AF.					

Table 7-7 Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4)

		2025	2030	2035	2040	2045
First year	Supply totals	3,293	3,293	3,293	3,293	3,293
	Demand totals	2,273	2,299	2,302	2,318	2,338
	Difference	1,020	994	991	975	955
Second year	Supply totals	3,293	3,293	3,293	3,293	3,293
	Demand totals	2,273	2,299	2,302	2,318	2,338
	Difference	1,020	994	991	975	955
Third year	Supply totals	3,293	3,293	3,293	3,293	3,293
	Demand totals	2,273	2,299	2,302	2,318	2,338
	Difference	1,020	994	991	975	955
Fourth year	Supply totals	3,293	3,293	3,293	3,293	3,293
	Demand totals	2,273	2,299	2,302	2,318	2,338
	Difference	1,020	994	991	975	955
Fifth year	Supply totals	3,293	3,293	3,293	3,293	3,293
	Demand totals	2,273	2,299	2,302	2,318	2,338
	Difference	1,020	994	991	975	955

NOTES:
(a) Volumes are in units of AF.

7.4 Water Management Tools and Options

The City is a member of the Sonoma-Marin Saving Water Partnership (SMSWP), which is a regional partnership program that represents twelve utilities in Sonoma and Marin counties that have joined together to provide a regional approach to water use efficiency. Participating in the partnership, the City also continues to implement an extensive water conservation program, which reduces the demand on imported supplies. As described in Chapter 9, the City manages per capita water use through the implementation of a series of demand management measures (DMMs).

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.

7.5.1 Characteristic Five-Year Water Use

As a first step to the Drought Risk Assessment, water suppliers are advised to estimated unconstrained water demand for the next five years (2021-2025). Unconstrained water demand is the expected water use in the absence of drought water use restrictions. The forecast of unconstrained demand for the next five years is shown in **Table 7-8** below.

Table 7-8 Characteristic Five-Year Water Use

	2021	2022	2023	2024	2025
Total Projected Use During Drought Period	2,239	2,246	2,253	2,261	2,273

7.5.2 Risk Assessment Projections

SCWA is expecting to be able to provide sufficient water supply from 2021 to 2025 to its water service contractor, including the City. Thus, as shown in **Table 6-9**, the City is expected to have sufficient water supply over the next five years.[2]

[2] Recycled water demand is based on the future recycled water projects presented in **Table 6-6**, and recycled water supply is assumed to be consistent with its demand.

Table 7-9 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (DWR Table 7-5)

2021	Total
Total Water Use	2,239
Total Supplies	3,288
Surplus/Shortfall w/o WSCP Action	1,049
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	-
Revised Surplus/(shortfall)	-
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	2,246
Total Supplies	3,288
Surplus/Shortfall w/o WSCP Action	1,042
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	-
Revised Surplus/(shortfall)	-
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	2,253
Total Supplies	3,288
Surplus/Shortfall w/o WSCP Action	1,035
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	-
Revised Surplus/(shortfall)	-
Resulting % Use Reduction from WSCP action	0%

Table 7-9 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (DWR Table 7-5)

2024	Total
Total Water Use	2,261
Total Supplies	3,288
Surplus/Shortfall w/o WSCP Action	1,027
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	-
Revised Surplus/(shortfall)	-
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	2,273
Total Supplies	3,293
Surplus/Shortfall w/o WSCP Action	1,020
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	-
WSCP - use reduction savings benefit	-
Revised Surplus/(shortfall)	-
Resulting % Use Reduction from WSCP action	0%
NOTES: (a) Volumes are in units of AF.	

8. WATER SHORTAGE CONTINGENCY PLAN

☑ ***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.

City of Sonoma's (City's) Water Shortage Contingency Plan (WSCP) is included as **Appendix F**. 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 City 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 California Water Code (CWC) §10632, the WSCP includes six levels to address shortage conditions ranging from up to 10 percent to greater than 50 percent shortage, identifies a suite of demand mitigation measures for the City to implement at each level, and identifies procedures for the City to annually assess whether a water shortage is likely to occur in the coming year, among other things.

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 F**.

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

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	Minimal Shortage – Up to 10% (Voluntary) Includes implementation of voluntary restrictions on end uses (see **Table 8-2**) as well as agency actions (see **Table 8-3**).
2	Up to 20%	Moderate Shortage – Up to 20% (Mandatory) Includes implementation of mandatory restrictions on end uses (see **Table 8-2**) as well as agency actions (see **Table 8-3**).
3	Up to 30%	Severe Shortage – 20% to 30% (Mandatory) 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%	Severe Shortage – 30% to 40% (Mandatory) 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%	Critical Shortage – 40% to 50% (Mandatory) Includes implementation of mandatory restrictions on end uses and water use budgets for customers (see **Table 8-2**), as well as agency actions (see **Table 8-3**).
6	>50%	Critical Shortage – greater than 50% (Mandatory) Includes implementation of mandatory restrictions on end uses and water use budgets for customers (see **Table 8-2**), as well as agency actions (see **Table 8-3**).
NOTES: The appropriate Stage will be enacted by City Council to respond to the corresponding estimated water shortage that may result from the following: droughts, extreme weather events, natural disasters, extended power outages, reduced deliveries from the SCWA, regulatory droughts, and other water shortage conditions.		

Table 8-2 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	Penalty, Charge, or Other Enforcement?
1	Other	Up to 10%	1. Washing sidewalks, walkways, driveways, parking lots and other hard-surfaced areas by direct hosing is not recommended, unless necessary for public health and safety. 2. Breaks or leaks are recommended to be corrected within 72 hours of discovery or notice from the City. 3. Irrigation in manner that allows excessive runoff of water, or unreasonably over-sprays the area of irrigation, is not recommended. 4. Washing cars, boats, trailers or other vehicles and machinery directly with a hose not equipped with a shutoff nozzle is not recommended. 5. Use of potable water for non-recycling decorative water fountains is not recommended. 6. Use of water for single pass evaporative cooling systems for air conditioning is not recommended for all connections installed after 6 June 2000 unless required for health or safety reasons. 7. Use of water for new, non-recirculating conveyor car wash systems is not recommended. 8. Use of water for new non-recirculating industrial clothes wash systems is not recommended. 9. Restaurants may only serve water upon request. 10. Hotels and lodging establishments offer a linen service opt-out. 11. The irrigation with potable water of ornamental turf on public street medians is not recommended. 12. Irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems is not recommended.	No
2	Other	Up to 20%	1. Voluntary action and measures from Stage 1 are now mandatory.	Yes

Table 8-2 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	Penalty, Charge, or Other Enforcement?
			2. Use of any garden or utility hose without a hose-end shut-off nozzle is prohibited. 3. Irrigation limited to three days per week, and irrigation is limited to the hours between 8pm to 6am. 4. Recycled water must be used for construction dust control. 5. Conduct water use surveys targeting high water users. 6. Car washing shall be allowed only at facilities using recycled or recirculating water. 7. Dedicated irrigation customers are required to conduct the irrigation survey.	
3	Other	Up to 30%	1. Continue with action and measures from Stage 2 except where superseded by more stringent requirements. 2. Irrigation limited to two days per week, and irrigation is limited to the hours between 8pm to 6am. This measure is voluntary under Stage 2 and becomes mandatory under Stage 3. 3. All pools must be covered when not in use.	Yes
4	Other	Up to 40%	1. Continue with action and measures from Stage 3 except where superseded by more stringent requirements. 2. Irrigation limited to two days per week. 3. Filling and/or refilling new and existing decorative water features (i.e. ponds, lakes and fountains) is prohibited. 4. Filling new swimming pools is prohibited. 4. Filling or topping-off of existing swimming pools is prohibited. 5. Conduct water use surveys targeting high water users. 6. Irrigation limited to one day per week, and irrigation is limited to the hours between 9pm to 6am.	Yes
5	Other	Up to 50%	1. Continue with action and measures from Stage 4 except where superseded by more stringent requirements. 2. Use of potable water for irrigation is prohibited for all customers.	Yes

Table 8-2 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	Penalty, Charge, or Other Enforcement?
			3. All residential and Commercial, Industrial, and Institutional (CII) customers shall reach a water reduction of forty five percent (45%) from previous use.	
6	Other	Greater than 50%	1. Continue with action and measures from Stage 5 except where superseded by more stringent requirements. 2. No water-using landscape may be installed in new construction. 3. New construction must offset new demand by conserving one times the new demand within the community. 4. No new water-using landscape may be installed by any customer. 5. All residential and CII customers shall reach a water reduction of fifty five percent (55%) from previous use.	Yes
NOTES:				

Table 8-3 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	Other	Up to 10%	1. The City implement media campaigns, including: o Publicize the water shortage and conservation measures using a media campaign, newspaper articles, and website. o Promote water conservation programs. o Hold water efficiency workshops and public events. o Distribute water bill inserts with information about water shortage and conservation.
2	Other	Up to 20%	1. Continue with action and measures from Stage 1 except where superseded by more stringent requirements. 2. Accelerate leak detection and repair program. 3. Suspend routine flushing of water mains except when necessary to address immediate health or safety concerns or when flushing can be conducted without discharge. 4. Reduce distribution system pressures.
3	Other	Up to 30%	1. Continue with action and measures from Stage 2 except where superseded by more stringent requirements. 2. The City will implement drought rate structure / water budget.
4	Other	Up to 40%	1. Continue with action and measures from Stage 3 except where superseded by more stringent requirements.
5	Other	Up to 50%	1. Continue with action and measures from Stage 4 except where superseded by more stringent requirements.

Table 8-3 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)*
6	Other	Greater than 50%	1. Continue with action and measures from Stage 5 except where superseded by more stringent requirements. 2. Increase staff enforcement to ensure customers complying with the assigned water budget.
NOTES:			

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.

The goal of the Demand Management Measures (DMM) section in a UWMP is to provide a comprehensive description of the water conservation programs that a supplier has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets. This chapter provides the opportunity for water suppliers to communicate their efforts to promote conservation and to reduce the demand on the water supply.

9.1 Regional Water Conservation

The Sonoma County Water Agency (SCWA), along with the cities of Santa Rosa, Rohnert Park, Sonoma, Cotati, and Petaluma, the Town of Windsor, and North Marin Water District (NMWD), Marin Municipal Water District (MMWD) and Valley of the Moon Water District (VOMWD) (the Partners), formed the Sonoma-Marin Saving Water Partnership (SMSWP) in 2010. The SMSWP's Memorandum of Understanding was amended in May 2018, extending the term another ten years, and adding language to streamline the addition of members to the SMSWP. Two new Partners have subsequently joined, with California American Water-Larkfield joining in January 2019 and the City of Healdsburg joining in August 2019.

SCWA coordinates the work of the SMSWP in conjunction with the Water Advisory Committee (WAC), which provides input to SCWA and holds certain powers and responsibilities enumerated in the Restructured Agreement for Water Supply between SCWA 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. The contact info for the SMSWP Coordinator is:

Paul Piazza
Principal Programs Specialist
SCWA
paul.piazza@scwa.ca.gov
Office: 707-547-1968

9.1.1 Funding

SCWA'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 have 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 SCWA's appropriative water rights or other regulation or law.

SCWA pursues grant funding on behalf of the SMSWP to off-set some of the programmatic costs associated with water use efficiency (WUE) programs and to test new technology. In the last five years, the Agency was awarded over $1.46 million dollars for implementing WUE programs in our region.

9.1.2 Annual Report

The Partners are committed to remain as members in good standing of CalWEP and 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 2019/2020 Annual Report for the SMSWP could be found in the SMSWP's website.[13]

9.1.3 Water and Energy Education Program

The Water and Energy Education Program is a comprehensive approach to helping educators teach students the "value" of water as an important natural resource. Water and energy conservation and stewardship of our local watersheds is promoted throughout the program. Students are encouraged to use water wisely and make environmentally sustainable choices to help secure a reliable source of freshwater now and in the future. The program includes classroom instructional presentations, field study opportunities at SCWA's Westside Education Facility, free curriculum materials aligned with the existing California State Frameworks and the California Science Standards, a lending library of videos, interactive models and printed materials, production of a newsletter for teachers and endorsement, participation

[13] The 2019/2020 Annual Report for the SMSWP: http://www.savingwaterpartnership.org/wp-content/uploads/SMSWP-Annual-Report-2020-FINAL.pdf.

and financial sponsorship of events, assemblies, and workshops. All of the education programs and materials are free to teachers in the service area, which covers over 200 schools throughout Sonoma and northern Marin counties. Due to the COVID-19 pandemic, the entire classroom curriculum was adapted in 2020 to provide both synchronous and asynchronous lessons for remote learning.

The total number of students receiving direct instruction in 2019/2020 was 8,030 (2,094 students in field study programs and 5,936 in classroom programs). Three hundred (300) adults participated in the field study program while serving as adult chaperones with participating classes. An additional 108 classes (2,388 students) signed up for programs that were canceled due to the COVID-19 pandemic.

9.1.4 Public Outreach Program

The SMSWP develops an annual regional outreach campaign that aligns with our current water supply conditions and promotes water use efficiency programs. Over the last few years, the campaigns have included the following:

- Saving Water Ensures Water for What You Love (2020),
- Together Making Water Conservation a California Way of Life (2019),
- There's Never Enough to Waste. (2017 & 2018), and
- Thank You for Doing Your Part (2016), and
- Take it From the Tap (2016).

SCWA, in collaboration with the members of the SMSWP, produces collateral material that aligns with the specific campaign. SCWA 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.

9.1.5 Regional Programs

SCWA 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:

- High Efficiency Clothes Washer Water Rebate – a rebate for replacing a top-loading clothes washer with a qualifying front-loading clothes washer.
- Green Business Program – Certification for local businesses that are going green.
- 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. This tour transitioned to an online video format in 2020 to adapt to the COVID-19 pandemic.
- Garden Sense – A free garden consultation program open to all Sonoma County residents. Consultants provide site-specific advice on lawn removal, sprinkler conversion to drip irrigation, and low water use plant selection.
- DIY Energy and Water Savings Toolkit – The Do-It-Yourself (DIY) Home Energy and Water Saving Toolkits are stocked with energy and water saving supplies that can help measure how much energy or water is being consumed in the home and make easy upgrades to your home to help save money on the utility bills.
- 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.
- Water-Energy Rebates for Restaurants and Food Service Facilities – a rebate program for replacing inefficient commercial kitchen equipment with new water and energy efficient models.

SCWA supports promoting new and innovative models to increase water use efficiency in our region. Some of the pilot projects we have collaborated with in the past include:

- PAYS Program (Windsor) – An on-bill financing program that allows water customers to fund their own water and energy improvements with a long-term payback on their water bill.
- SmartMarkets Pilot (VOMWD) – A water market that allows for 'eco-shares' to be earned for reducing demand and redeemed for various incentives.
- Water Smart Software (Cotati) – A community based social marketing platform that compares a customer's water use to their neighbors to encourage behavioral change.
- Barnacle Pilot Program (All) – An online platform that provides real-time water use data to the customer outside of the water utilities billing infrastructure.
- Unmetered Flow Reducer (NMWD) – An in-line device that is placed between the meter and the customer connection that allows small leaks to be 'batched' through the meter, thus reducing unaccounted for water from low flow leaks and allowing the customer to be notified that a leak in occurring.

SCWA participates in numerous regional and statewide initiatives to ensure the SMSWP is on the forefront of water use efficiency, legislation, and conservation planning, such as:

- California Water Efficiency Partnership (Programs Subcommittee, Research Subcommittee), successor organization of the former California Urban Water Conservation Council,
- California Irrigation Institute,
- Association of California Water Agencies (Water Management and Water Use Efficiency Subcommittees),
- Russian River Watershed Association, and
- California Landscape Contractors Association.

The SMSWP has received notable recognition for effective collaboration and program implementation. Below are the awards the SMSWP has received.

- EPA Water Sense Excellence Award 2020 and Sustained Excellence Award 2020,
- EPA Water Sense Excellence Award 2019 and Sustained Excellence Award 2019,
- EPA Water Sense Excellence Award 2018 and Sustained Excellence Award 2018,
- EPA Water Sense Excellence Award 2017 and Sustained Excellence Award 2017, and
- EPA Water Sense Partner of the Year 2016.

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 City was previously a signatory to the California Urban Water Conservation Council's (CUWCC's) Memorandum of Understanding (MOU) submitted Best Management Practice (BMP) annual reports in lieu of describing the Demand Management Measures in prior UWMPs. The CUWCC has been dissolved since the 2015 UWMP, and thus BMP annual reports are no longer available. However, the City continues to implement DMMs in general accordance with the CUWCC BMPs. A description of the nature and extent of each DMM was implemented over the last five years is provided below. Additional information regarding DMM implementation is provided in **Appendix B.**

9.2.1 DMM 1 – Water Waste Prevention Ordinances

The City prohibits water waste, as detailed in Ordinance 02-2009. The water waste prevention ordinance is in place at all times and is not dependent upon a water shortage for implementation. Additional details could be found in the City's website:

https://www.codepublishing.com/CA/Sonoma/#!/Sonoma13/Sonoma1310.html#13.10

9.2.2 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 City meters all of its customers, in all customer categories, and is planning to implement Advanced Metering Infrastructure (AMI) before 2025 for all customers.

9.2.3 DMM 3 – Conservation Pricing

The City has been increasing block/tier volumetric water rates for its single-family and multi-family residential customer classes and uniform water rates for its commercial and dedicated irrigation customer classes. The City's water rate structure was revised in 2018 and is consistent with current law. The City's current water rates can be found on the City's website at: https://www.sonomacity.org/water-rates/.

9.2.4 DMM 4 – Public Education and Outreach

The City has instituted public education and outreach efforts. Outreach efforts depend on the situation and may include the following:

- Marketing of rebates and giveaways;
- Communicating water use via water bills (e.g., increased frequency of billing, an easy-to-understand bill format, or bills that compare a customer's water use to the water use of similar customers);
- Providing school education programs;
- Information booths at fairs and public events;
- Newsletters;
- Informative websites, online tools, or social media;
- Newspaper articles; and
- Other activities not listed here.

As described in Section 9.2.4 above, the City participates in school education outreach administered through the SMSWP. From the 2015-2016 to the 2019-2020 school years, over 1,700 students were reached by direct instruction and nearly 8,300 students were reached through indirect instruction such as assemblies, video and poster contests, and other educational materials.

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

The City 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 results of the last five years of water audit data are summarized in Section 4.1.3, and are available through DWR's Water Use Efficiency Data Portal.[14] The City has an active water loss control program, which include the following programs:

- Large meter accuracy testing,
- Continuous flow notification to customers,
- Zero consumption accounts inspected,
- Timely repair of distribution leaks,
- Systemic replacement of oldest service lines, and
- Transition to self-closing hydrant break plates

9.2.6 DMM 6 – Water Conservation Program Coordination and Staffing Support

The City of Sonoma has a Senior Maintenance Worker/Water Conservation Specialist who works with the City and SMSWP staff to coordinate water conservation activities among twelve member agencies of SMSWP. See section 9.1 for a summary of the conservation activities implemented by SMSWP.

Mike Brett
Senior Maintenance Worker/Water Conservation Specialist
City of Sonoma
mbrett@sonomacity.org
Office: 707-933-2247

9.2.7 DMM 7 – Other Demand Management Measures

For additional DMM information, see the City of Sonoma's 2020 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update (**Appendix B**).

[14] DWR's Water Use Efficiency Data Portal: https://wuedata.water.ca.gov/awwa_plans

9.3 Planned Implementation to Achieve Water Use Targets

☑ ***CWC § 10631 (e)***

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

(1) (A) … 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.

Beginning in 2023, urban water retailers will be required to report on "annual water use objectives" by November 1 of each year and to achieve these objectives by 1 January 2027 (per CWC § 10609). The annual water use objectives will be calculated based on standards for indoor residential water use, outdoor residential water use, and distribution system water loss. Additionally, it is anticipated that performance-based standards for the commercial, industrial, and institutional sectors, separate from the annual water use objectives, will also be developed by DWR, and implemented in the future. However, the specific standards that will be used to determine a retailer's annual urban water use objectives are currently under development by DWR, and thus, the annual urban water use objectives for the City cannot be calculated or estimated. Therefore, the City intends to continue implementing DMMs both locally and through the SMSWP and will evaluate potential adjustments needed to these programs as the annual water use objective standard methodologies are developed in the coming years. The City of Sonoma's 2020 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update, provided in **Appendix B**, evaluates several options for future conservation program implementation.

10. PLAN ADOPTION AND SUBMITTAL

This chapter provides information on a public hearing, the adoption process for the Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP), the adopted UWMP and WSCP submittal process, plan implementation, and the process for amending the adopted UWMP or WSCP.

10.1 Notification of UWMP Preparation

☑ ***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.

City of Sonoma (City) sent a letter to thirteen entities including the County of Sonoma and other local agencies informing them that the City was in the process of updating its UWMP and WSCP and soliciting their input in the update process. A listing of the entities contacted is provided in **Table 2-4**; the notices are included in **Appendix C** for reference. The letter was sent more than 60 days before the public hearing as required by code.

10.2 Notification 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.

10.2.1 Notice to Cities and Counties

At least two weeks prior to the public hearing, the entities mentioned above in Section 10.1 were noticed that the UWMP and WSCP public hearing would be occurring on 7 June 2021. The letter informed them of the locations the Public Review Draft 2020 UWMP and the updated WSCP would be available for review and welcoming their input and comments on the document. The Public Review Draft 2020 UWMP and the

WSCP was available for public review on the City website. **Table 2-4** lists the cities, counties, and other agencies that were notified. Copies of these letters are provided in **Appendix C.**

10.2.2 Notice to the Public

The City issued public notifications soliciting public input during the preparation of 2020 UWMP and the WSCP. On 21 May 2021 and 28 May 2021, the City published a notice in the Sonoma Index-Tribune informing the public that the 2020 UWMP and the WSCP would be available for public review on the City website, consistent with requirements of California Government Code 6066. The notice also informed the public that the 2020 UWMP and WSCP public hearing would be held virtually on 7 June 2021. 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.

Prior to adopting the Plan, the City held a formal public hearing to present information on the 2020 UWMP and WSCP on 7 June 2021 at 6:00 PM virtually.

As part of the public hearing, the City provided the audience with information on compliance with the Senate Bill (SB) X7-7, including its baseline daily per capita water use, water use targets, implementation plan, and 2020 compliance.

This UWMP was adopted by Resolution No. 37-2021by the City Council during its 7 June 2021 City Council meeting. The WSCP included as **Appendix F** was adopted by Resolution No. 37-2021 during the same meeting. A copy of the resolutions is included in **Appendix G**.

10.4 Plan Submittal

☑ ***CWC § 10621***

(f) (1) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

☑ ***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.

(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.

This UWMP and WSCP were submitted to DWR within 30 days of adoption and by the 1 July 2021 deadline. The submittal was done electronically through Water Use Efficiency Data Portal, an online submittal tool. The adopted Plan was also sent to the California State Library and Sonoma County.

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 21 May 2021, printed hard copies of the draft 2020 UWMP and WSCP were made available for review during normal business hours at the City's office. Electronic versions were also made available by visiting the City's website (https://www.sonomacity.org/).

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 Plan is amended, each of the steps for notification, public hearing, adoption, and submittal will also be followed for the amended document.

11. REFERENCES

ABAG, 2018. Association of Bay Area Governments, Plan Bay Area Projections 2040, released November 2018.

ABAG, 2020. Association of Bay Area Governments, Regional Housing Needs Allocation Proposed Methodology: San Francisco Bay Area, 2023-2031, released on October 2020: https://abag.ca.gov/sites/default/files/rhna_methodology_report_2023-2031_finalposting.pdf.

AWE, 2016. Water Conservation Tracking Tool Version 3, Alliance for Water Efficiency, released in July 2016.

California Building Standards Commission. CAL Green Code, effective 2014 with supplements effective 2015: http://www.bsc.ca.gov/Home/CALGreen.aspx

City of Sonoma, 2011. Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan Taming Natural Disasters, adopted 7 November 2011.

City of Sonoma, 2006. 2020 General Plan, dated October 2006.

DWR, 2003. Bulletin 118 – Update 2003, October 2003. Online: http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118-update_2003_/bulletin118_entire.pdf

DWR, 2006. California Groundwater Bulletin 118, dated January 2006.

DWR, 2015. Department of Water Resources Model Water Efficient Landscape Ordinance (California Code of Regulations, Title 23, Division 2, Chapter 2.7), dated July 9, 2015.

DWR, 2016a. Guidebook for Urban Water Suppliers, 2015 Urban Water Management Plan, dated March 2016.

DWR, 2016b. Methodologies for Calculating Baseline and Compliance Urban Per Capita Water, California Department of Water Resources Division of Statewide Integrated Water Management Water Use and Efficiency Branch, updated March 2016.

DWR, 2019. Sustainable Groundwater Management Act 2018 Basin Prioritization, State of California, January 2019.

DWR, 2018. Fact Sheet - Water Efficiency Legislation will Make California More Resilient to Impacts of Future Droughts, dated 7 June 2018: https://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/water_efficiency_bill_factsheet.pdf

EKI, 2020. 2020 Water Demand Analysis and Water Conservation Measure Update, City of Sonoma, dated November 2020.

GHD, 2018a. City of Sonoma Draft Final Recycled Water Feasibility Analysis, February 2018.

GHD, 2018b. City of Sonoma Final Water Master Plan Update, February 2018.

Santa Rosa Plain Basin Advisory Panel, 2014. Santa Rosa Plain Watershed Groundwater Management Plan, Santa Rosa Plain Basin Advisory Panel, 2014.

SCWA, 2014. Five-Year Review and Update Final Report, Sonoma Valley Groundwater Management Program, dated March 2014.

SCWA, 2016. 2015 Urban Water Management Plan, prepared by Brown and Caldwell, June 2016.

SCWA, 2018. Sonoma County Water Agency Local Hazard Mitigation Plan, dated 16 October 2018.

State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2011-2020. Sacramento, California, May 2020.Winzler & Kelly, 2020. City of Sonoma 2010 Urban Water Management Plan, dated in June 2011.

U.S. Census, 2021. U.S. Census Bureau QuickFacts website, obtained on 16 February 2021, https://www.census.gov/quickfacts/fact/table/US/PST045219.

Appendix A

Completed UWMP Checklist

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Chapter 1
x	x	Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Section 1.6
x	x	Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1
x	x	Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.2.2 and Table 2-4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Section 2.2.3
x		Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Section 2.2.1 and Table 2-3
	x	Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	N/A
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Chapter 3
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.4 and Table 3-4
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.1.1 and Table 3-1
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.3 and Table 3-3

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.1.1 and Table 3-1
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.2 and Figure 3-3
x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Sections 4.1 and 4.2, Tables 4-1 and 4-4
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.1.3
x	x	Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System Water Use	Section 4.2.4 and Table 4-7
x	x	Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.2.1
x	optional	Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.1.3 and Table 4-3
x	optional	Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.2.3 and Table 4-6
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Section 5.1 and 5.2 and Tables 5-1 and 5-2
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.4 and Table 5-4
	x	Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	N/A
x		Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A
x		Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.3 and Table 5-2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Section 5.4 and Table 5-4
x	x	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Section 7.2
x	x	Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Section 6.10.1
x	x	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Chapter 6
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Chapter 6
x	x	Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.9 and Table 6-9

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
x	x	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.3
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.2.1
x	x	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
x	x	Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Section 6.2.1

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.5 and Table 6-1
x	x	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	Section 6.9 and Table 6-9
x	x	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	Section 6.7
x	x	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)	Section 6.5 and Table 6-2 and 6-3
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and Table 6-4
x	x	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)	Section 6.5.3

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.3 and Table 6-5
x	x	Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.4 and Table 6-6
x	x	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)	Section 6.5.4
x	x	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6
x	x	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)	Section 6.5.2 and Table 6-2 and 6-3
x	x	Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Section 6-8 and Table 6-7

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.11 and Table 6-10
x	x	Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1.1
x	x	Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Chapter 7
x	x	Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.2 and Tables 7-1 through 7-4
x	x	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	Section 7.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.5.1 and Table 7-8
x	x	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	Section 7.5
x	x	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.5 and Table 7-9
x	x	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	Section 7.5 and Table 7-9
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Chapter 8 and Appendix F
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix F, Chapter 2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix F, Chapter 11
x	x	Section 8.2	10632(a)(2)(A)	Provide the written decision- making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix F, Chapter 4
x	x	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix F, Chapter 4
x	x	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix F, Chapter 5
x	x	Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix F, Chapter 5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix F, Section 6.1 and Table 6-2
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix F, Section 6.2 and Table 6-1
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix F, Section 6.3
x	x	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix F, Section 6.4
x	x	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix F, Sections 6.1 and 6.2 and Tables 6-1 and 6-2
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix F, Section 6.6
x	x	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix F, Chapter 7

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix F, Chapter 7
x		Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Appendix F, Chapter 8
x	x	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix F, Chapter 9
x	x	Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix F, Chapter 9
x	x	Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix F, Chapter 9
x	x	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix F, Chapter 10
x	x	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix F, Chapter 10

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix F, Chapter 10
x		Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix F, Chapter 11
x		Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix F, Section 6.2.2
x	x	Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Appendix F, Chapter 13
x	x	Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix F, Chapter 13

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
	x	Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	N/A
x		Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Section 9.1 and 9.2
x		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	Section 10.2
x	x	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 10.1
x	x	Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 10.4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Section 10.2
x	x	Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Section 10.2
x	x	Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.2
x	x	Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4
x	x	Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4
x	x	Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 10.4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5
x	x	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5
x	x	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
x	x	Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 10.6

Appendix B

2020 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update, City of Sonoma

2020 Water Demand Analysis and Water Conservation Measure Update

City of Sonoma

November 2020
(EKI C00004.00)

Prepared by:
EKI Environment & Water, Inc.
2001 Junipero Serra Boulevard, Suite 300
Daly City, California 94014
(650) 292-9100

2020 Water Demand Analysis and
Water Conservation Measure Update
City of Sonoma

Table of Contents

2020 Water Demand Analysis and
Water Conservation Measure Update
City of Sonoma

Table of Contents

ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AFY	acre-feet per year
AMI	advanced metering infrastructure
AWE	Alliance for Water Efficiency
CA	California
CEQA	California Environmental Quality Act
CII	commercial, industrial, and institutional
CWC	California Water Code
DMM	demand management measure
DOF	Department of Finance
DRA	drought risk assessment
DWR	Department of Water Resources
GPCD	gallons per capita per day
GPD	gallons per day
gpf	gallons per flush
HECW	high efficiency clothes washer
HET	high efficiency toilet
MFR	multi-family residential
PRV	Pressure Reducing Valves
QWEL	Qualified Water Efficient Landscaper
SB	Senate Bill
SCWA	Sonoma County Water Agency
SFR	single family residential
SMSWP	Sonoma-Marin Saving Water Partnership
sq ft	square feet
SWRCB	State Water Resources Control Board
UHET	ultra high-efficiency toilet
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment
WSCP	Water Shortage Contingency Plan

1. INTRODUCTION

In preparation for development of their 2020 Urban Water Management Plan (UWMP) updates, nine members of the Sonoma-Marin Saving Water Partnership (SMSWP or Water Contractors) coordinated to conduct a joint update of their water demand projections and water conservation planning efforts (i.e., the *2020 Water Demand and Conservation Project*). The participating SMSWP members include: 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 agencies are shown on **Figure 1-1**.

The goals of the *2020 Water Demand and Conservation Project* were 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;
- Estimate projected water demands for the years 2025 through 2045 to support both the 2020 UWMP update and coordination and planning efforts with Sonoma County Water Agency (SCWA);
- 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.

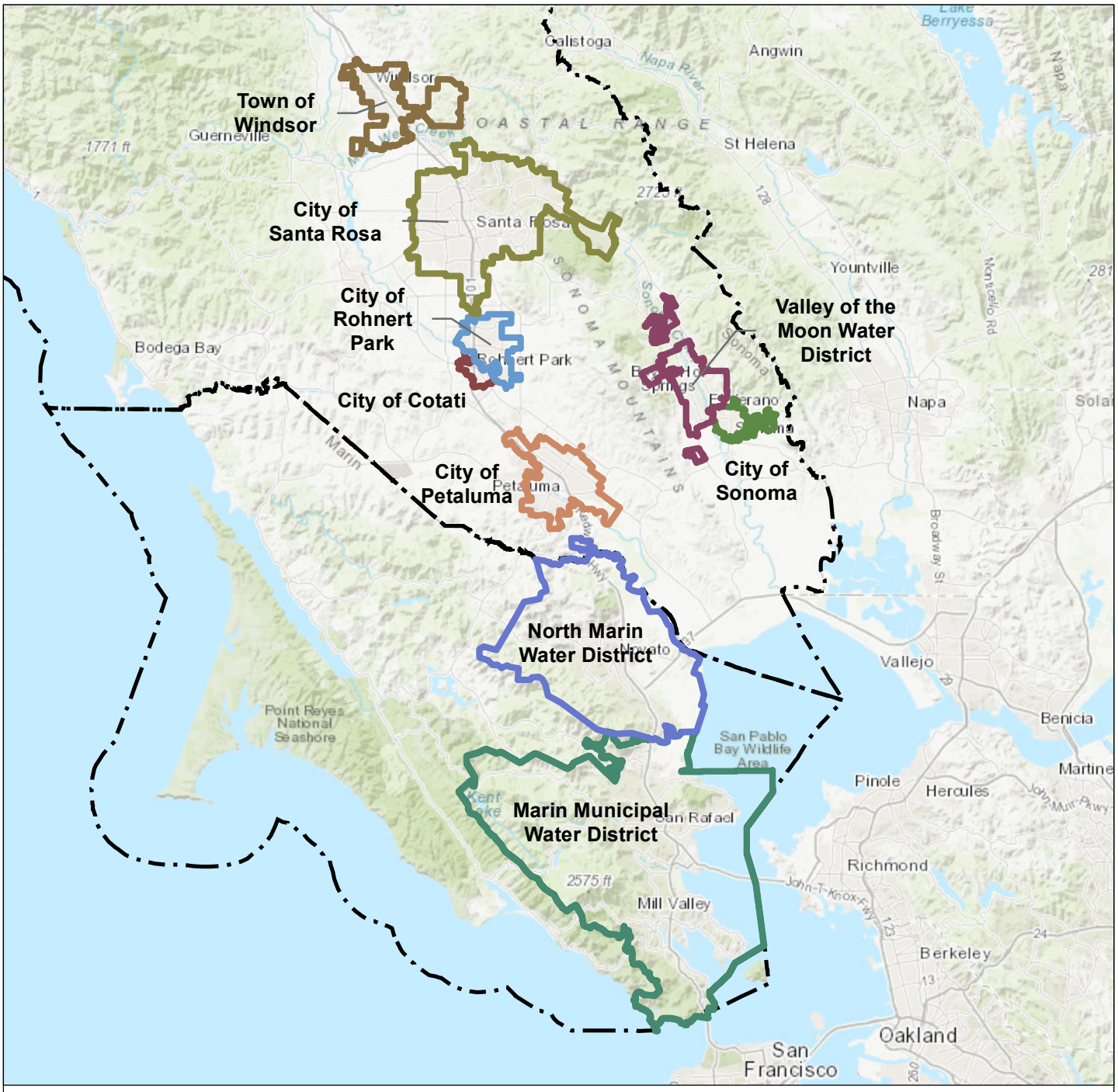
This 2020 Water Demand and Conservation report presents the results for the City of Sonoma (City), which is located in Sonoma County and serves a population of approximately 11,764 people (**Figure 1-2**). The City's water supplies are primarily surface water purchased from the Sonoma County Water Agency (SCWA), and local City-operated groundwater supply (i.e., generally less than 10% of the City's total supplies; Sonoma, 2016). Over the years, the City has worked to increase water efficiency (conservation) among itself and its customers in response to both the SB X7-7 UWMP requirements and as part of the regional SMSWP. This conservation has been achieved through the implementation of water conservation programs, including some administered by the City and some administered through the regional SMSWP.

This 2020 Water Demand and Conservation report is organized as follows:

- **Section 1** identifies the goals and objectives of this report;
- **Section 2** provides the regulatory context for the demand projections described in this report as well as new requirements related to UWMPs and long-term demand planning that agencies will need to consider in development of their 2020 UWMPs;
- **Section 3** describes historical water use patterns and characteristics within the City;
- **Section 4** describes the projected water demands through 2045, including the assumptions and methodology used;

- **Section 5** documents past participation in conservation programs and estimated savings associated with program implementation;
- **Section 6** documents the water conservation measure screening process, identifies individual programs and program scenarios for potential future implementation by the City, and presents the results of a benefit-cost analysis and an estimate of the potential water savings associated with these conservation programs;
- **Section 7** provides conclusions regarding the main findings of the report; and
- **Section 8** provides key references and sources.

It is noted that small tables are provided within text throughout the document. Figures and large tables and charts are provided at the end of each section.



Legend

- County Boundary
- 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
- Valley of the Moon Water District

Notes

1. All locations are approximate.

Sources

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

N

0 8 16

Miles

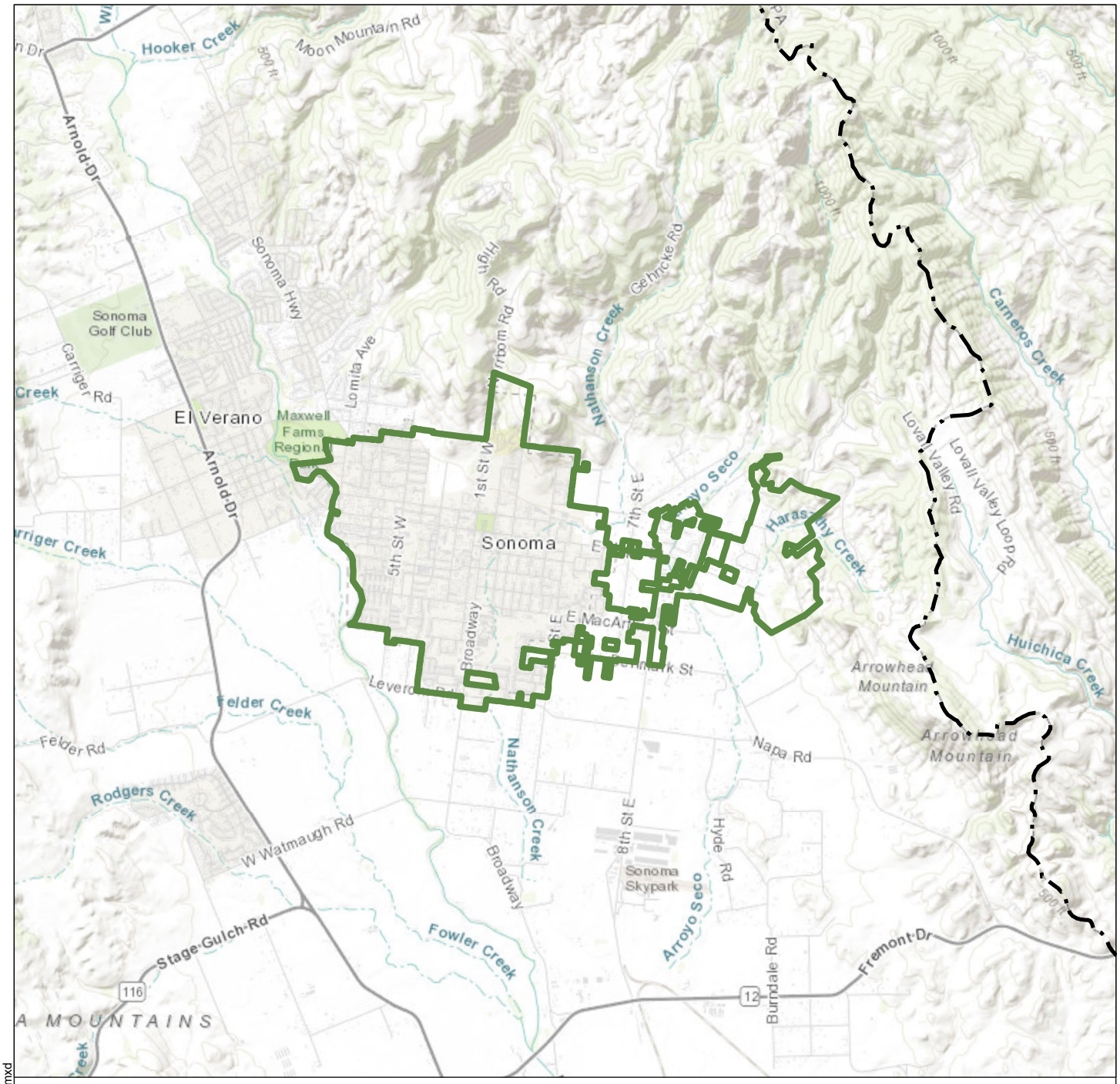
Participating Sonoma-Marin Saving Water Partnership Members

Sonoma-Marin Saving Water Partnership
November 2020
C00004.00

Figure 1-1

eki environment & water

Path: X:\C00004_SonomaMarin\Map\2020\09\SMSWP Map_20200904.mxd



Legend

- County Boundary
- City of Sonoma

N

0 1 2

Miles

City of Sonoma Service Area

Notes

1. All locations are approximate.

Sources

1. Service area boundary provided by City of Sonoma.
2. Basemap provided by ESRI.

Sonoma-Marin Saving Water Partnership
November 2020
C00004.00

Figure 1-2

eki environment & water

Path: X:\C00004_SonomaMarin\Map\2020\08\AgencyBoundaryMaps_20200904.mxd

2. REGULATORY CONTEXT

This section is provided both as regulatory background for the requirements to project future demand in the 2020 UWMP, and for elements of the City's 2020 UWMP that are beyond the scope of the *2020 Water Demand and Conservation Project,* such as consideration of supply reliability, water shortage contingency planning, and the annual urban water use objectives agencies will be required to report on in 2023 and meet by 2027.

2.1. 2020 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. As described further in Section 4, water demand projections were developed for the City using a land-use based approach that is consistent with these requirements, and can be incorporated into the City's 2020 UWMP.

CWC § 10631

A plan shall be adopted in accordance with this chapter that shall do all of 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 be noted of that fact.

2.2. New Requirements for 2020 UWMPs and Future Demand Planning

Through the recent *Making Water Conservation a California Way of Life* (Assembly Bill [AB]-1668/Senate Bill [SB]-606) and other legislation, the State has made numerous changes to the requirements for UWMPs and related water conservation planning efforts. In many cases, the updated regulations reference details and methodologies to be developed by the California Department of Water Resources (DWR), and/or are somewhat vague and will benefit from the development of guidelines/further clarification by DWR. DWR is currently developing an updated guidebook to support the development of the 2020 UWMPs, which is expected to be complete by late 2020. This new guidebook is anticipated to provide direction to agencies with respect to many elements of the new legislation.

A summary of key changes to various elements of 2020 UWMP and related planning efforts is provided below. Copies of the revisions to relevant sections of the California Water Code per AB-1668, SB-606, and SB-664 are provided in **Appendix A.**

2.2.1. Annual Urban Water Use Objectives

Beginning in 2023,[1] agencies will be required to report on "annual water use objectives" by November 1 of each year, per CWC § 10609. The specific standards that will be used to determine an agency's annual urban water use objectives are currently under development and are the source of a great deal of uncertainty with respect to the long-term water conservation and demand planning as part of the 2020 UWMP. Although the 2020 UWMP will not identify or calculate these new annual urban water use objectives, the new standards will become effective within the UWMP planning horizon. Per CWC § 10609.25, agencies will be required to "provide a narrative that describes the water demand management measures that the supplier plans to implement to achieve its urban water use objective by January 1, 2027." Details regarding the annual urban water use objectives and other requirements are expected to evolve significantly over the next two years.

- **Residential outdoor water use:** Per CWC § 10609.6, DWR and California State Water Resources Control Board (SWRCB) "shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor residential use" which "incorporate the principles of the model water efficient landscape" and "apply to irrigable lands." DWR is currently working with a contractor to measure all of the single- and multi-family landscape (irrigable) area within urban water suppliers' service areas across the state based on aerial imagery. The result of these measurements will become the basis for an agency's residential landscape water use component of the annual water use objectives. In order to accurately calculate and compare against this metric, agencies will be responsible for identifying what dedicated irrigation accounts are associated with residential water use (including multi-family residential), and what dedicated

[1] DWR acknowledged publicly on 5 December 2019 that this and other related deadlines are likely to slip. DWR indicated that compliance with these objectives will most likely begin in 2024.

irrigation accounts are associated with commercial, industrial and institutional (CII) use. The landscape area measurement process is being lead through a stakeholder workgroup process with periodic public meetings.

- **Residential indoor water use:** Per CWC § 10609.4.(a), "(1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily. (2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be the greater of 52.5 gallons per capita daily or a standard recommended pursuant to subdivision (b). (3) Beginning January 1, 2030, the standard for indoor residential water use shall be the greater of 50 gallons per capita daily or a standard recommended pursuant to subdivision (b)." While the legislation appears to be clear on the method to calculate the indoor residential water use component, the SWRCB has begun the California Environmental Quality Act (CEQA) process for the new water use objective requirements and has expressed concern that using the 55 gallons per capita per day (GPCD) number in the legislation will constitute "backsliding" and thus will need to be ratcheted down.
- **Water loss:** Per CWC § 10608.34.(i), "No earlier than January 1, 2019, and no later than July 1, 2020, the board shall adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses. In adopting these rules, the board shall employ full life-cycle cost accounting to evaluate the costs of meeting the performance standards. The board may consider establishing a minimum allowable water loss threshold that, if reached and maintained by an urban water supplier, would exempt the urban water supplier from further water loss reduction requirements." The SWRCB is developing a complicated cost-benefit analysis methodology that would need to be conducted by agencies in order to determine what water loss controls are deemed cost-effective and thus required to be implemented. Water agencies and the California Municipal Utilities Association are advocating for an alternative methodology. The implementation of these requirements has been delayed beyond the 1 July 2020 deadline.
- **CII:** Rather than developing a water volume-based standard for the CII sector, DWR was tasked with developing a set of performance standards through a workgroup process to increase water efficiency, per CWC § 10609.10, with adoption of these performance measures by 30 June 2022. Based on this process, DWR has determined that it is impossible to set such standards today, but agencies will be required to report on progress towards key actions related to potential future standards, such as conversion of mixed CII meters to dedicated irrigation meters, performance of water audits for CII accounts, development of water management plans for CII accounts, detailed classification of CII accounts by industry, etc. The specific actions that agencies will be required to report are not yet known.
- **Recycled Water Use:** In previous UWMPs, calculations of SB X7-7 baselines, targets, and gross water use for compliance were based only on potable water use, and thus the use of recycled water to offset potable water use was an effective method to help agencies conserve potable water and meet their SB X7-7 targets. However, under CWC § 10609.(b)(2)(F), the benefit of recycled water for compliance with annual water use objectives is much more limited: "Provides a bonus incentive for the amount of potable recycled water used the previous year when comparing the previous year's water use with the urban water use objective, of up to 10 percent of the urban water use objective." Thus, adoption and expansion of recycled water use only provides a compliance benefit if it constitutes direct potable reuse, indirect potable reuse, or reservoir augmentation (CWC § 10608.12.(o)).

2.2.2. Supply Reliability

- Agencies will be required to develop procedures to conduct annual water supply and demand assessments to determine its water supply reliability for the current year and one dry year and to conduct these assessments annually beginning in 2022 (CWC § 10632(a)(2)). These procedures are required to include the following (emphasis added):

  (A) The **written decision making process** that an urban water supplier will use each year to determine its water supply reliability.
  (B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

  (i) Current year unconstrained demand, **considering weather, growth, and other influencing factors,** such as policies to manage current supplies to meet demand objectives in future years, as applicable.

  (ii) Current year available supply, considering **hydrological and regulatory conditions in the current year and one dry year.** The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

  (iii) Existing infrastructure capabilities and plausible constraints.

  (iv) **A defined set of locally applicable evaluation criteria** that are consistently relied upon for each annual water supply and demand assessment.

  (v) A description and **quantification of each source** of water supply.

- In addition, the requirement to analyze supply reliability for a period of multiple consecutive drought years has been extended from a 3-year period to a 5-year period, per CWC §10631(f) and §10635(a). Specifically, agencies are now required to "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."

2.2.3. Water Shortage Contingency Plans

The new regulations also add new requirements related to drought planning and Water Shortage Contingency Plans (WSCPs):

- Agencies will now be required to conduct a drought risk assessment (DRA) as part of their UWMPs to assess water supply reliability (or vulnerability) for a period of drought lasting **five consecutive water years,**[2] starting from the year following that of the UWMP, and to compare water supplies (assessing each source of supply separately) with total projected water use (CWC § 10635(b)) during that period. The DRA five-year period for this 2020 UWMP is 2021-2025. During the 10 March 2020 workshop, DWR indicated that agencies will be expected to identify supply and

[2] While the corresponding Water Supply Assessment (WSA) regulations have not been updated to require analysis of a five-year period, agencies should consider including a five-year drought period in their supply reliability assessment in any new WSAs.

demand on a monthly basis for this purpose, although it is noted that this does not appear to be an explicit requirement of the regulations.

- Per CWC § 10632.5 agencies' WSCPs "shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities" and an agency may submit "a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk."
- WSCPs will be required to use "Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage," or to provide a "cross-reference relating its existing categories to the six standard water shortage levels."

3. WATER USE CHARACTERISTICS

This section describes historical water use by customers within the City, including changes in use observed during and after the historic 2014 - 2016 drought, changes in average per account water use over time, and estimates of indoor and outdoor water use, based on data provided by the City. This information is used to provide context and background to support the projections of future demands (Section 4) and estimates of potential conservation program benefits (Section 6).

3.1. Historical Total and Per Capita Water Use

Table 3-1 summarizes the City's historical water use, service area population, and per capita water use for the years 2010 through 2019 (Sonoma, 2020a). Water use is described both in terms of total water produced and average per capita water use. It should be noted that the 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 City's 2020 UWMP.

Total water use ranged from 1,737 acre-feet per year (AFY) to 2,279 AFY over this period. Total per capita water use ranged from 126 gallons per capita per day (GPCD) to 165 GPCD.

Both the total and per capita water use declined from 2014 through 2016, likely influenced by the historic drought conditions, mandatory state-wide restrictions in urban water use imposed by the State Water Resources Control Board (SWRCB), and local drought response. Total and per capita water use has remained lower than pre-drought conditions, with a slight increase in 2017 and 2018, indicating a degree of rebound following the drought.

Historical water use by customer sector is provided in **Table 3-2**. The single family residential (SFR) sector comprises the largest proportion of the City's total water use (i.e., 55% in 2019). By comparison, in 2019, landscape irrigation accounts comprised 6.4% of total water use; the commercial/institutional sector comprised 13% of total water use; the multi-family residential (MFR) sector comprised 14% of total water use; and other water use comprised 4.4% of total water use. In 2019, non-revenue water was estimated to be 7.6% of the total water demand.

3.2. Historical Average Water Use Per Account

The total number of accounts varies over time due to growth and development within the City and shifts in land use (e.g., redevelopment of industrial areas).

The total number of accounts by customer sector for the 2010 to 2019 period is shown in **Table 3-3**, including a pie chart illustrating the relative proportion of accounts (Sonoma, 2020a). The SFR sector comprised the highest proportion of accounts in 2019 (81%), followed by commercial/institutional (6.7%), MFR (6.3%), and landscape irrigation (1.7%). From 2010 to 2019, the number of accounts increased between 1.3% and 6.3% for most sectors. The number of commercial/institutional accounts, however, decreased by 13% over this period.

Average water use per account is presented in **Table 3-4**. For most sectors, per account water usage has followed the same general trends over time as total water use in the City (per **Table 3-1**). However,

commercial/institutional water use appears to have had less fluctuation over time, and per account water use by landscape irrigation accounts experienced a greater rebound in water use following the drought compared to other sectors.

3.3. Estimated Indoor and Outdoor Water Use

When designing and estimating the benefits of potential water conservation programs, it is important to understand the relative proportion of water use that is used indoors versus outdoors.

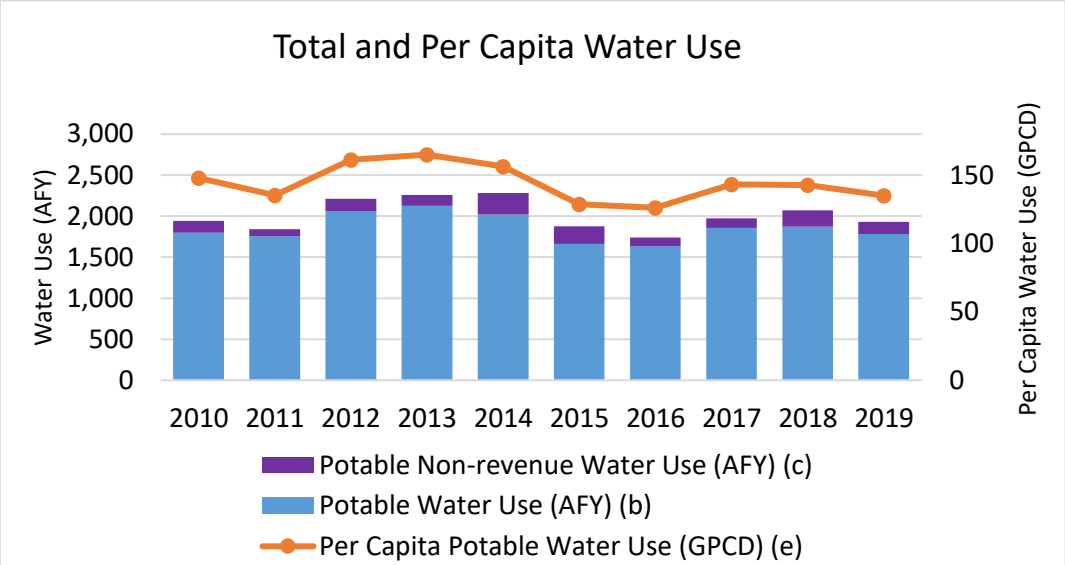
As shown in the chart in **Table 3-5**, water use within the City varies seasonally, and water use in the summer is often two to four times greater than water use during the winter. This seasonality is typically driven by increased irrigation needs in the summer, as compared to the more limited irrigation water use during the wetter and cooler winter months. This is a high-level estimate of indoor and outdoor water use, which errs on the side of estimating higher indoor water use.

Given the water use patterns presented in **Table 3-5**, the minimum average daily water use during winter months (December-March) was used to estimate the indoor water use for all non-irrigation customer sectors. The results of this estimate are shown in **Table 3-6**. Approximately 44% of all water use within the City is estimated to be indoor use, and 56% to be outdoor water use.

Aside from the irrigation and "other" sectors (presumed 100% outdoor water use), SFR water use is estimated to have the highest proportion of outdoor water use at 56%, followed by MFR at 36% and commercial/institutional at 31%. It should be noted that landscape areas for larger multi-family developments tend to have dedicated irrigation accounts. Further, some industries within the commercial/institutional sector, such as restaurants and manufacturing, may also experience some degree of seasonality in indoor use, with increased business and production during summer months. Thus, these should be considered high-level estimates of indoor and outdoor use proportions.

Table 3-1
Water Use and Population
City of Sonoma, Sonoma-Marin Saving Water Partnership

Year (a)	Potable Water Use (AFY) (b)	Potable Non-revenue Water Use (AFY) (c)	Total Water Use (AFY)	Service Area Population (d)	Per Capita Potable Water Use (GPCD) (e)
2010	1,797	143	1,941	10,842	148
2011	1,755	86	1,841	11,571	135
2012	2,057	153	2,210	11,387	161
2013	2,126	130	2,256	11,490	165
2014	2,018	261	2,279	11,520	156
2015	1,662	215	1,877	11,529	129
2016	1,633	104	1,737	11,551	126
2017	1,857	117	1,974	11,562	143
2018	1,872	198	2,070	11,695	143
2019	1,781	147	1,929	11,764	135



Abbreviations:
AFY = acre-feet per year
GPCD = gallons per capita per day

Notes:
(a) Data are presented on a calendar year basis.
(b) Water use data per Reference 1.
(c) Estimated non-revenue water per Table 3-2.
(d) Historical population for 2010-2014 per Reference 1 and 2015-2019 per Reference 2.
(e) Per capita water use is calculated by dividing the annual water use by service area population and the number of days in a year.

Table 3-1

Water Use and Population

City of Sonoma, Sonoma-Marin Saving Water Partnership

References:

1. Sonoma, 2020a. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.
2. Sonoma, 2020b. Information provided by the City of Sonoma, received 21 July 2020.

Table 3-2
Water Use by Customer Sector
City of Sonoma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Water Use (AFY) (a) (b)									
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Single Family Residential	1,034	1,026	1,153	1,223	1,226	874	899	1,028	1,037	1,054
Multi-Family Residential	273	251	311	321	280	253	258	273	277	272
Commercial/Institutional	243	236	281	280	275	261	244	255	253	249
Landscape Irrigation	116	101	132	139	104	129	103	160	151	123
Other	131	141	180	163	133	146	129	141	154	84
Total Water Consumption	**1,797**	**1,755**	**2,057**	**2,126**	**2,018**	**1,662**	**1,633**	**1,857**	**1,872**	**1,781**
Non-revenue Water (c) (d)	7.4%	4.7%	6.9%	5.8%	11%	11%	6.0%	5.9%	9.6%	7.6%
	143	86	153	130	261	215	104	117	198	147
Total Water Use	**1,941**	**1,841**	**2,210**	**2,256**	**2,279**	**1,877**	**1,737**	**1,974**	**2,070**	**1,929**

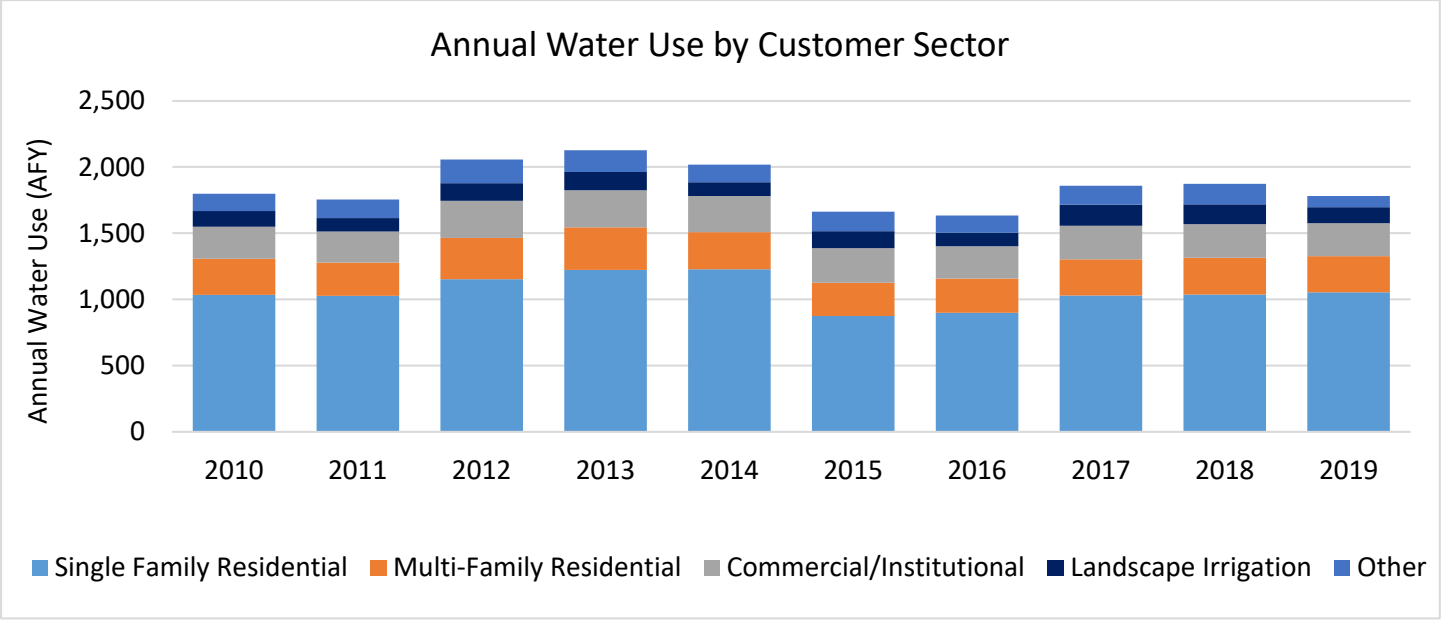


Table 3-2

Water Use by Customer Sector

City of Sonoma, Sonoma-Marin Saving Water Partnership

Abbreviations:

AFY = acre-feet per year

Notes:

(a) Data are presented on a calendar year basis.

(b) Water use by sector per Reference 3.

(c) Non-revenue water for 2010-2012 and 2015-2018 per Reference 4 and 2013-2014 per Reference 2. For 2019 where non-revenue water data was unavailable, the average percent water loss from the 2016-2018 Water Loss Audit Reports was used, per Reference 1.

(d) Estimates of non-revenue water are based on the potable water system and include both real and apparent losses.

References:

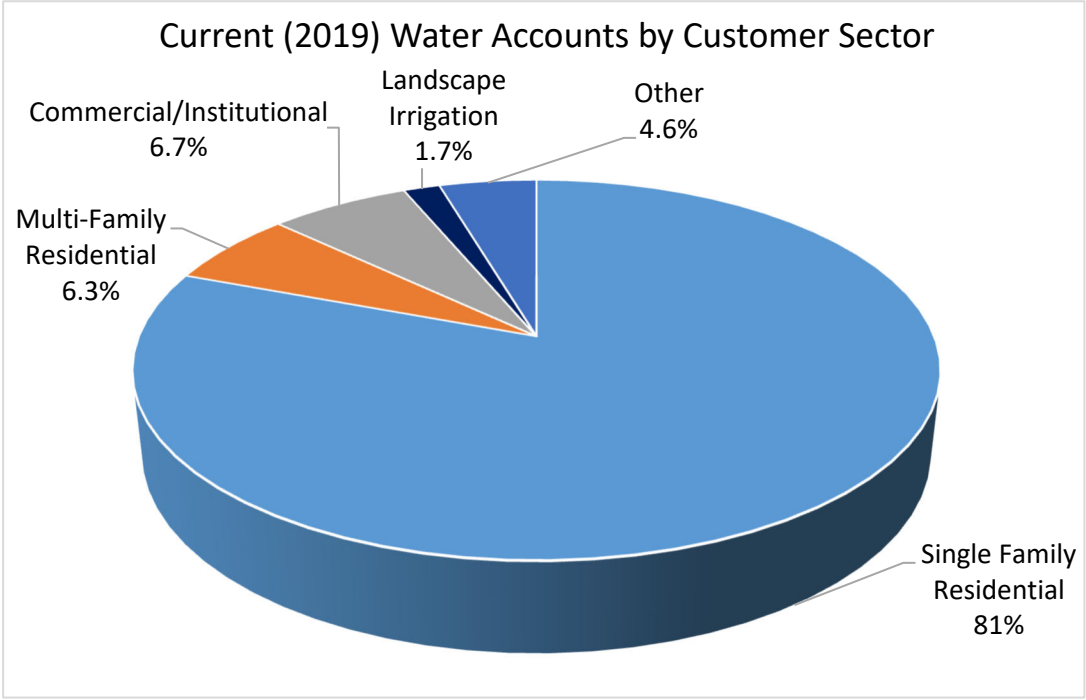
1. DWR, 2020. WUEdata - Water Audit Report Data website, accessed 17 June 2020, (https://wuedata.water.ca.gov/awwa_plans).
2. Sonoma, 2015. DSS Water Demand & Conservation Model, prepared by Maddaus Water Management, dated 1 July 2015.
3. Sonoma, 2020a. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.
4. Sonoma, 2020b . WATER LOSS & UNACCOUNTED-FOR WATER DATA.xlsx, provided by the City of Sonoma on 2 June 2020.

Table 3-3

Number of Accounts by Customer Sector

City of Sonoma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Number of Accounts (a) (b)									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Single Family Residential	3,488	3,461	3,477	3,577	3,500	3,493	3,505	3,505	3,545	3,550
Multi-Family Residential	269	269	282	278	274	277	279	279	278	278
Commercial/Institutional	335	301	334	324	299	300	298	298	294	293
Landscape Irrigation	75	75	84	82	87	89	91	91	72	76
Other	191	195	206	209	207	209	214	214	200	203
Total Accounts	**4,358**	**4,301**	**4,383**	**4,470**	**4,367**	**4,368**	**4,387**	**4,387**	**4,389**	**4,400**



Notes:

(a) Data are presented on a calendar year basis.

(b) Number of potable water services by sector per Reference 1.

Table 3-3

Number of Accounts by Customer Sector

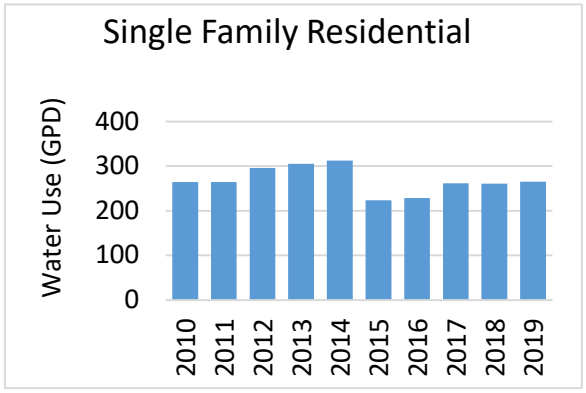
City of Sonoma, Sonoma-Marin Saving Water Partnership

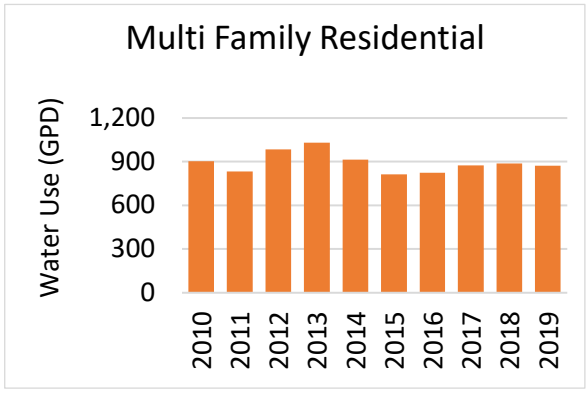
References:

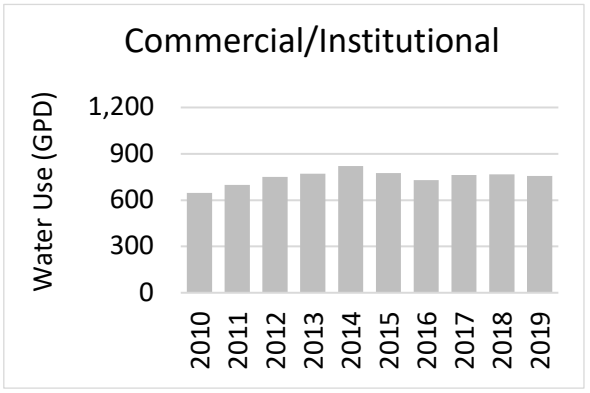
1. Sonoma, 2020. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.

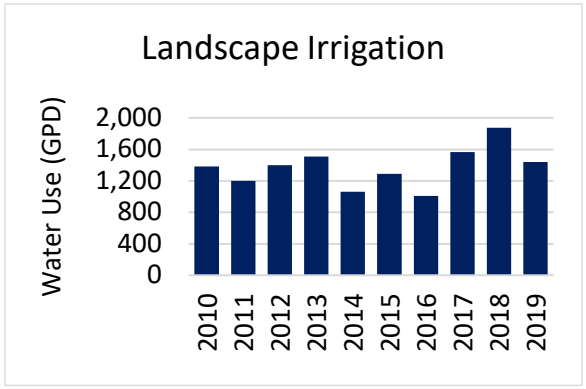
Table 3-4
Per Account Water Use by Customer Sector
City of Sonoma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Water Use per Account (GPD) (a) (b)									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Single Family Residential	264	265	296	305	312	223	229	262	261	265
Multi-Family Residential	904	833	985	1,030	913	813	824	874	888	871
Commercial/Institutional	648	698	751	771	822	775	731	763	768	758
Landscape Irrigation	1,384	1,198	1,400	1,509	1,063	1,288	1,010	1,568	1,873	1,441
Other	614	647	781	696	572	622	540	587	687	370









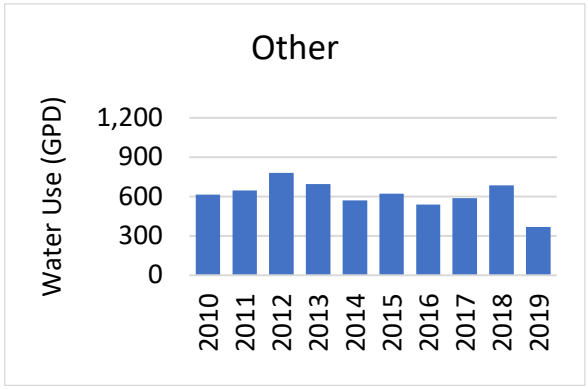


Table 3-4

Per Account Water Use by Customer Sector

City of Sonoma, Sonoma-Marin Saving Water Partnership

Abbreviations:

GPD = gallons per day

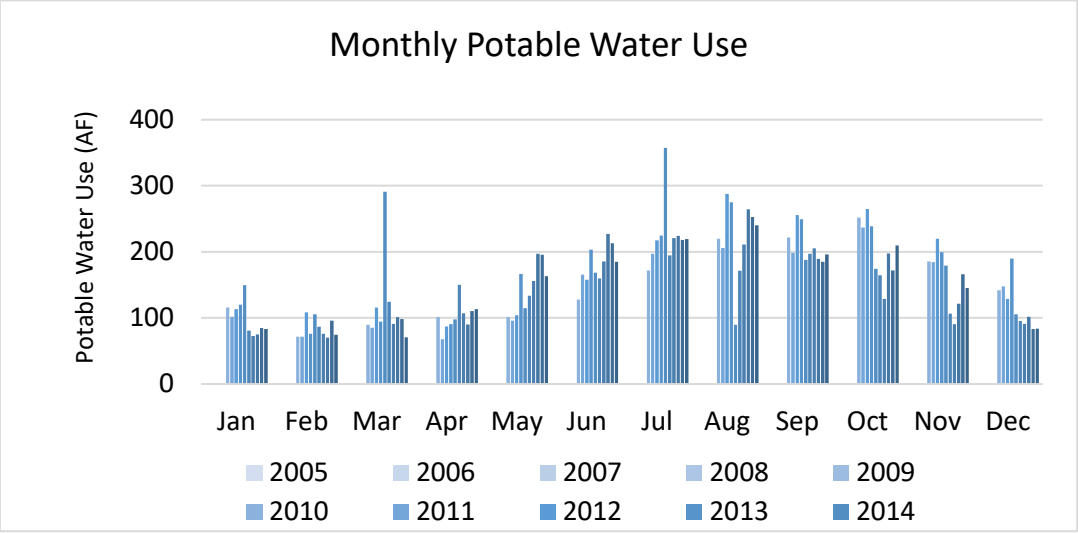
Notes:

(a) Data are presented on a calendar year basis.

(b) Water use and number of accounts by sector per Tables 3-2 and 3-3.

Table 3-5
Monthly Water Use
City of Sonoma, Sonoma-Marin Saving Water Partnership

Month	Monthly Water Use (AF) (a)									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Potable Water Use										
January	115	102	113	120	149	80	72	75	84	83
February	71	71	108	76	105	86	76	70	95	74
March	89	85	115	94	291	124	91	101	98	70
April	101	68	87	90	97	150	107	90	110	113
May	101	95	104	166	114	133	156	197	195	163
June	128	165	158	203	168	160	185	227	213	185
July	172	197	217	225	357	194	220	224	218	219
August	220	206	287	275	89	171	211	264	252	240
September	222	198	256	249	188	197	205	189	185	196
October	252	237	265	239	174	165	129	197	172	210
November	185	184	220	199	179	106	90	121	166	145
December	142	147	128	190	105	95	91	102	83	83



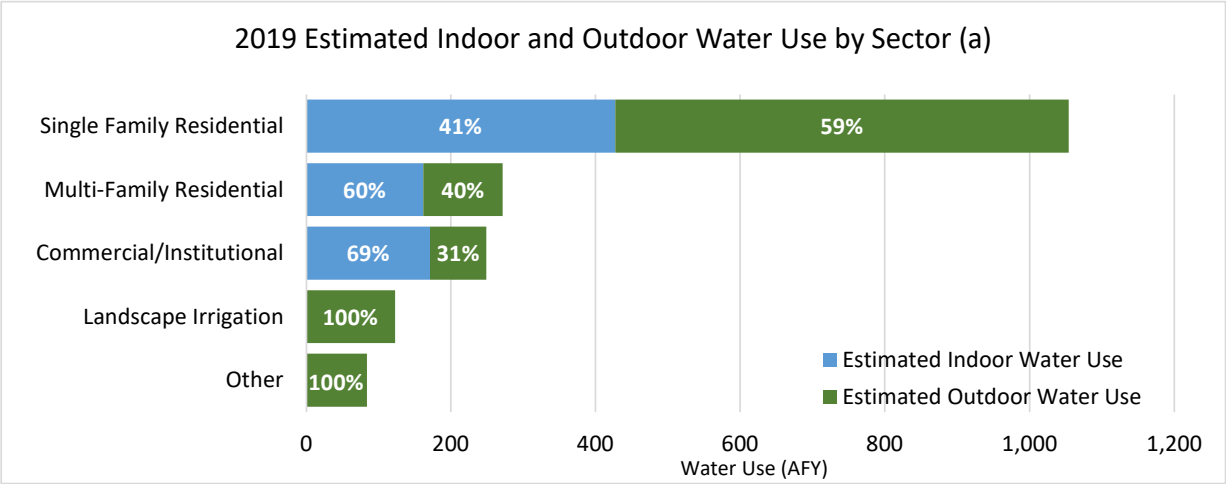
Abbreviations:
AF = acre-feet

Notes:
(a) Monthly potable water use per Reference 1.

References:
1. Sonoma, 2020. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.

Table 3-6
Estimated Indoor and Outdoor Water Use
City of Sonoma, Sonoma-Marin Saving Water Partnership

Water Use Sector	2017				2018				2019				Average Pct.	
	Indoor Water Use (AFY)	Outdoor Water Use (AFY)	Pct. Indoor	Pct. Outdoor	Indoor Water Use (AFY)	Outdoor Water Use (AFY)	Pct. Indoor	Pct. Outdoor	Indoor Water Use (AFY)	Outdoor Water Use (AFY)	Pct. Indoor	Pct. Outdoor	Indoor Use	Outdoor Use
Single Family Residential	431	598	42%	58%	507	530	49%	51%	427	627	41%	59%	44%	56%
Multi-Family Residential	174	99	64%	36%	191	85	69%	31%	162	110	60%	40%	64%	36%
Commercial/Institutional	166	89	65%	35%	188	65	74%	26%	171	78	69%	31%	69%	31%
Landscape Irrigation	0	160	0%	100%	0	151	0%	100%	0	123	0%	100%	0%	100%
Other	0	141	0%	100%	0	154	0%	100%	0	84	0%	100%	0%	100%
Total	**771**	**1,086**	**42%**	**58%**	**886**	**986**	**47%**	**53%**	**760**	**1,021**	**43%**	**57%**	**44%**	**56%**



Abbreviations:
AFY = acre-feet per year
Pct. = Percentage

Notes:
(a) The minimum average daily water use from December through March was used to estimate indoor water use for all non-irrigation customer sectors. This method is used to assess relative proportion of indoor and outdoor use, and conservatively errs on the side of estimating more indoor water use, so that the potential for outdoor water savings is not over-estimated.

References:
1. Sonoma, 2020. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.

4. WATER DEMAND PROJECTIONS

The purpose of this section is to document the basis, methodology, and resulting projected demands for the City through 2045. As described in more detail below, the future water demands for the City 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. Identifying known planned developments within the City to verify that account growth projections consider all anticipated growth,
3. Evaluating and selecting water demand factors for each water use sector based on review of recent average per account water use representing three scenarios,
4. Estimating future passive savings using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (AWE model), and
5. 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 City and reflect a land-use based approach consistent with the City's community planning.

4.1. Basis for Account Growth Projections

Water demand increases as new accounts are added to the system, among other factors. In order to estimate how accounts will grow within the City, recent historical account growth within the City 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 4-1 presents historical population and 2018 Association of Bay Area Governments (ABAG) Plan Bay Area Projections 2040 population and employment growth projections for the City, in context with recent historical population estimates.[3]

Table 4-2, below, identifies which growth projection was applied to each water use sector (population or employment) at the City's direction, identifies the average annual growth rate in accounts observed within

[3] Several growth projections were evaluated as potential bases for growth assumptions, including previous 2013 ABAG Plan Bay Area Projections (ABAG, 2013), ABAG Plan Bay Area Projections 2040 (ABAG, 2018), and 2020 Department of Finance (DOF) Total Estimated and Projected Population for California and Counties (DOF, 2020). The DOF (2020) projections are only available at the County-wide level and show a decline in population over the planning horizon and given the recent historical growth observed in the City, are not considered appropriately conservative for planning purposes. Although anticipated to be released in 2020, updated ABAG projections are not yet available. Therefore ABAG (2018) projections were selected as the basis for growth assumptions for the City.

the City (based on data presented in **Table 3-3**), and the associated average annual growth rate projected by ABAG (2018).

Historical growth rates for accounts within the MFR sector are generally consistent with ABAG (2018) projections. The historical growth rate observed for SFR and landscape irrigation accounts is less than half the ABAG (2018) projected growth rate. From 2010 to 2019, there was a 1.4% decrease in the number of commercial/institutional accounts. Based on a comparison of recent historical growth in accounts, these projections are assumed to be reasonably conservative for planning purposes.

The planning horizon for the 2020 UWMP is 2045; however, the ABAG (2018) projections extend only through 2040. For purposes of demand projections, it is therefore assumed that the projected growth rates from 2035 through 2040 extend through 2045.

Table 4-2
Historical and Projected Account Growth Rate by Customer Sector

Water Use Sector	Basis for Account Growth	Average Annual Growth (a)	
		Historic (2010-2019)	ABAG 2018 (2020-2040)
Single Family Residential	population	0.20%	0.47%
Multi-Family Residential	population	0.37%	0.47%
Commercial/Institutional	employment	-1.4%	0.46%
Landscape Irrigation	employment	0.15%	0.46%
Other	population	0.70%	0.47%

Abbreviations:
ABAG = Association of Bay Area Governments

Notes:
(a) Growth 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, per ABAG 2018 was applied.

4.2. Planned Development Within the Service Area

Future demand projections should account for all growth within the City. In order to verify that the ABAG (2018) growth assumptions appropriately include new developments, known planned developments were inventoried. Based on information provided by the City (provided in **Appendix B**), there are currently 10 new development projects in various stages of planning and construction within the City. In addition, a 6-unit condo development (referred to as the Murray Condos) was recently constructed in 2020. These development projects include:

- 208 SFR units,
- 84 MFR units,
- 12 accessory dwelling units,
- 62 hotel units, and
- 100 restaurant seats (Sonoma, 2020b).

The number of new accounts associated with these planned developments is estimated and presented in **Table 4-3**, along with the projected increase in accounts over the planning horizon based on the growth projections described in Section 4.1 and taking into account the planned development described under Section 4.2. For purposes of this assessment, it is conservatively assumed that all planned projects will be built out by 2030.

4.3. Water Demand Factors

Water use is influenced by a variety of factors, including weather, economic recession, and state and local regulations, among other drivers. Given this, selecting a "representative" baseline year 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 City.

Water demand factors based on historical use within the City were used as the basis of future demand projections for potable water accounts, considering in particular the range of water use associated with pre-drought conditions, post-drought conditions, and a midpoint scenario that assumes water use partially rebounds to pre-drought conditions. **Table 3-2** provides historical water use by sector within the City. To more fully capture total water use within the City, non-revenue water is estimated as a percentage of potable water production as discussed in 4.3.2.

4.3.1. Potable Water

As shown in **Table 4-4**, below, the City evaluated a range of potable water demand factors for each potable water use sector using three water use scenarios, based on recent historical average per account water use for selected time periods, representing pre-drought water use rates, post-drought water use rates, and a partial rebound to pre-drought water use rates. Specifically:

1. *Pre-drought demand factors* based on the maximum per account water use by sector for 2011 through 2013 (**Table 3-4**), generally representing higher water use before drought restrictions were put in place.
2. *Post-drought demand factors* based on the maximum per account water use by sector for 2017 through 2019 (**Table 3-4**), generally representing lower water use than pre-drought conditions but with some amount of rebound.
3. *Partial rebound demand factors* estimated as the midpoint of the pre-drought and post-drought demand factors, representing an average of the two scenarios.

Table 4-4
Potential Potable Water Demand Factors Considered

Water Use Sector	Water Demand Factor (GPD/account) (a)		
	Pre-Drought (2011-2013)	Partial Rebound	Post-Drought (2017-2019)
Single Family Residential	305	285	265
Multi-Family Residential	1,030	959	888
Commercial/Institutional	771	770	768
Landscape Irrigation	1,509	1,691	1,873
Other	781	734	687

Abbreviations:
GPD = gallons per day

As shown in **Table 4-5**, below, for purposes of developing the City's 2045 demand projections, the City directed EKI to apply partial rebound demand factors to all water use sectors.

Table 4-5
Selected Water Demand Factors

Water Use Sector	Water Demand Factor (GPD/account)	Basis for Demand Factor
Single Family Residential	285	Partial rebound
Multi-Family Residential	959	Partial rebound
Commercial/Institutional	770	Partial rebound
Landscape Irrigation	1,691	Partial rebound
Other	734	Partial rebound

Abbreviations:
GPD = gallons per day

4.3.2. Non-Revenue Water (Potable Water System)

Non-revenue water is water that has been produced but not billed, and thus does not generate revenue for the supplier. Non-revenue water includes unbilled authorized uses (such as water for fighting fires and flushing mains) and water losses (including real losses due to distribution system leaks and apparent losses due to metering inaccuracies). Urban water agencies are required to perform an annual audit of water loss of their potable water distribution system, which is used as the basis for estimating future water use associated with non-revenue water. As shown in **Table 4-6**, potable non-revenue water is projected to range from 174 AFY to 187 AFY through 2045, based on the average percentage of water loss reported from 2017 to 2019 (7.7%, see **Table 3-2**).

4.4. Passive Water Savings Estimates

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 City (AWE, 2016). The AWE model takes into account estimates of historical population, residential building stock, number of accounts, and projected population and account growth to estimate future passive savings. The estimated passive savings are presented in **Table 4-6** and are subtracted from the water demand projected based on the water demand factors described in Section 4.3 above.

4.5. Projected Water Demand Through 2045

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 4-6**. Potable water demand is projected to increase to 2,283 AFY in 2045, which is an 18% increase over 2019 water demand. Potable water demand projections are generally consistent with the City's 2015 UWMP demand projections but 326 AFY lower than the City's 2018 Master Plan projections in 2040 (Sonoma, 2018).

Projected recycled water demand, also shown in **Table 4-6**, is based on the City's 2015 UWMP projections (Sonoma, 2016). The 2015 UWMP anticipated recycled water would be in use by 2017, however implementation was delayed. Construction is currently underway and is anticipated that recycled water deliveries will begin by 2025. Recycled water demand is projected to be 55 AFY in 2045.

Table 4-1
Population and Employment Growth Projections
City of Sonoma, Sonoma-Marin Saving Water Partnership

Category	Growth Projections (a)											Total Growth Rate 2020-2040	Average Annual Growth Rate 2020-2040
	2015	2016	2017	2018	2019	2020	2025	2030	2035	2040	2045 (d)		
Population													
Historical Population Estimates (b)	11,529	11,551	11,562	11,695	11,764	--	--	--	--	--	--	--	--
2018 ABAG Population Projections (c)	--	--	--	--	--	10,880	11,235	11,570	11,675	11,905	12,140	9.4%	0.47%
Employment													
2018 ABAG Employment Projections (c)	--	--	--	--	--	7,305	7,495	7,785	7,975	7,980	7,985	9.2%	0.46%

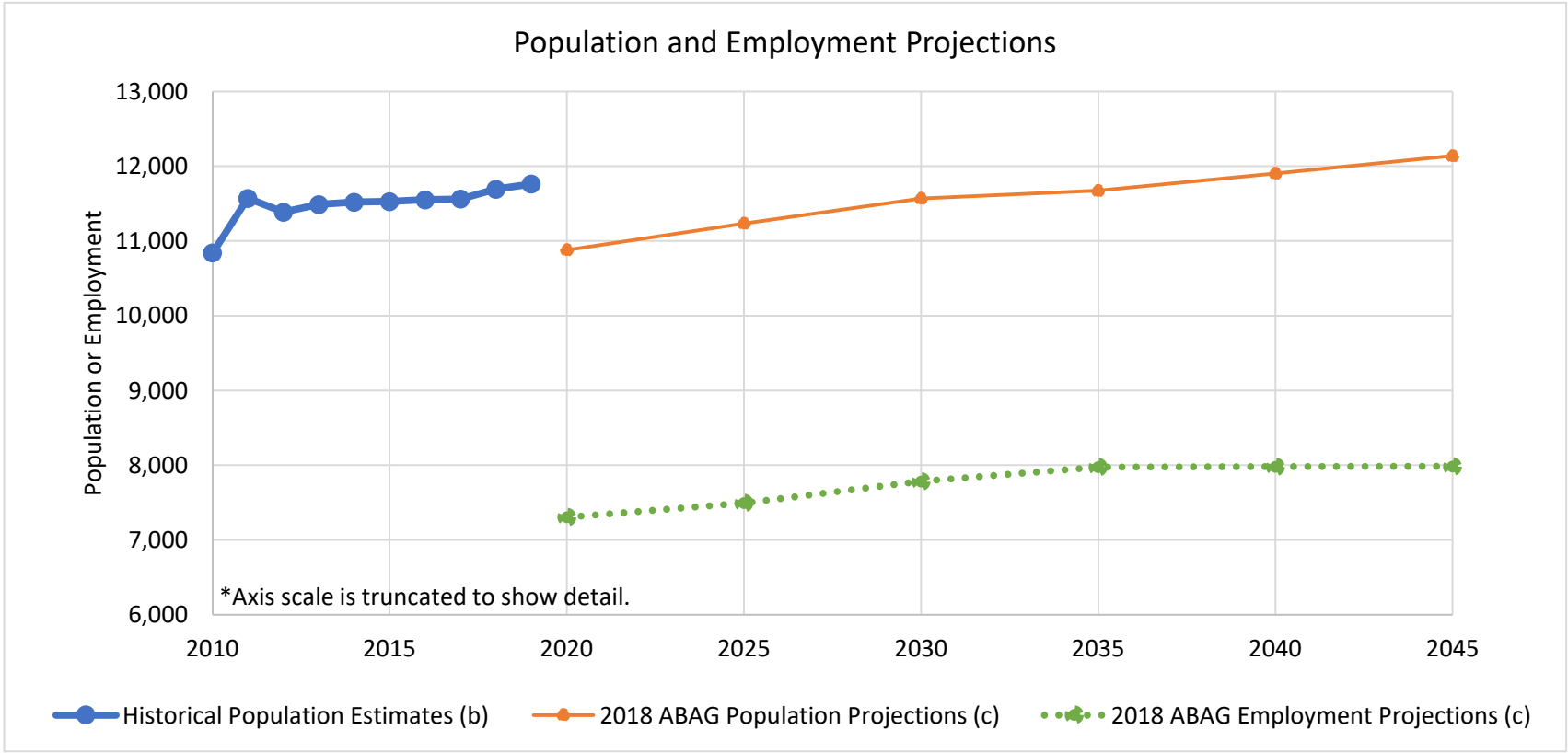


Table 4-1
Population and Employment Growth Projections
City of Sonoma, Sonoma-Marin Saving Water Partnership

Abbreviations:
-- = not available
ABAG = Association of Bay Area Governments

Notes:
(a) Population and employment are estimated for the water service area, which extends beyond City limits.
(b) Historical population for 2010-2014 per Reference 2 and 2015-2019 per Reference 3.
(c) 2018 ABAG population and employment projections per Reference 1. Since ABAG-estimated population is notably lower than historical population, ABAG growth rates for the City are considered, and not absolute population values.
(d) ABAG 2018 includes projections through 2040. 2045 population and employment projections are calculated based on 2035-2040 growth rates (2.0% and 0.063%, respectively).

References:
1. ABAG, 2018. Association of Bay Area Governments, Plan Bay Area Projections 2040, released on November 2018.
2. Sonoma, 2020a. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.
3. Sonoma, 2020b. Information provided by the City of Sonoma, received 21 July 2020.

Table 4-3

Change in Number of Accounts based on Projected Growth

City of Sonoma, Sonoma-Marin Saving Water Partnership

Projected Number of Accounts

Water Use Sector	Number of Accounts (a)				
	2025	2030	2035	2040	2045 (b)
Single Family Residential	3,689	3,799	3,833	3,909	3,986
Multi-Family Residential	302	302	305	311	317
Commercial/Institutional	302	314	321	322	322
Landscape Irrigation	78	81	83	83	83
Other	211	217	219	224	228
Total Accounts	**4,582**	**4,713**	**4,762**	**4,848**	**4,936**

Incremental Increase in Accounts from 2019

Water Use Sector	Number of Accounts				
	2025	2030	2035	2040	2045
Single Family Residential	139	249	283	359	436
Multi-Family Residential	24	24	27	33	39
Commercial/Institutional	9	21	28	29	29
Landscape Irrigation	2	5	7	7	7
Other	8	14	16	21	25
Total New Accounts	**182**	**313**	**362**	**448**	**536**

Estimate of Known Planned Development

Water Use Sector	Number of Accounts; Cumulative (c)				
	2025	2030	2035	2040	2045
Single Family Residential	26	208	208	208	208
Multi-Family Residential	24	24	24	24	24
Commercial/Institutional	1	2	2	2	2
Landscape Irrigation	2	3	3	3	3
Other	--	--	--	--	--
Total New Accounts	**53**	**237**	**237**	**237**	**237**

Abbreviations:

-- = not available

ABAG = Association of Bay Area Governments

Table 4-3

Change in Number of Accounts based on Projected Growth

City of Sonoma, Sonoma-Marin Saving Water Partnership

Notes:

(a) Growth in number of accounts is estimated based on ABAG 2018 projected growth rates for population and employment, per Reference 1 and shown in Table 4-2. Residential and "other" accounts are estimated relative to population growth, while commercial and landscape irrigation accounts are estimated relative to employment growth. Multi-family residential accounts are adjusted for known planned development beyond that anticipated by ABAG 2018 growth rates.

(b) ABAG 2018 includes projections through 2040. For purposes of demand and account projections, it is assumed that the growth rate remains constant from 2036 through

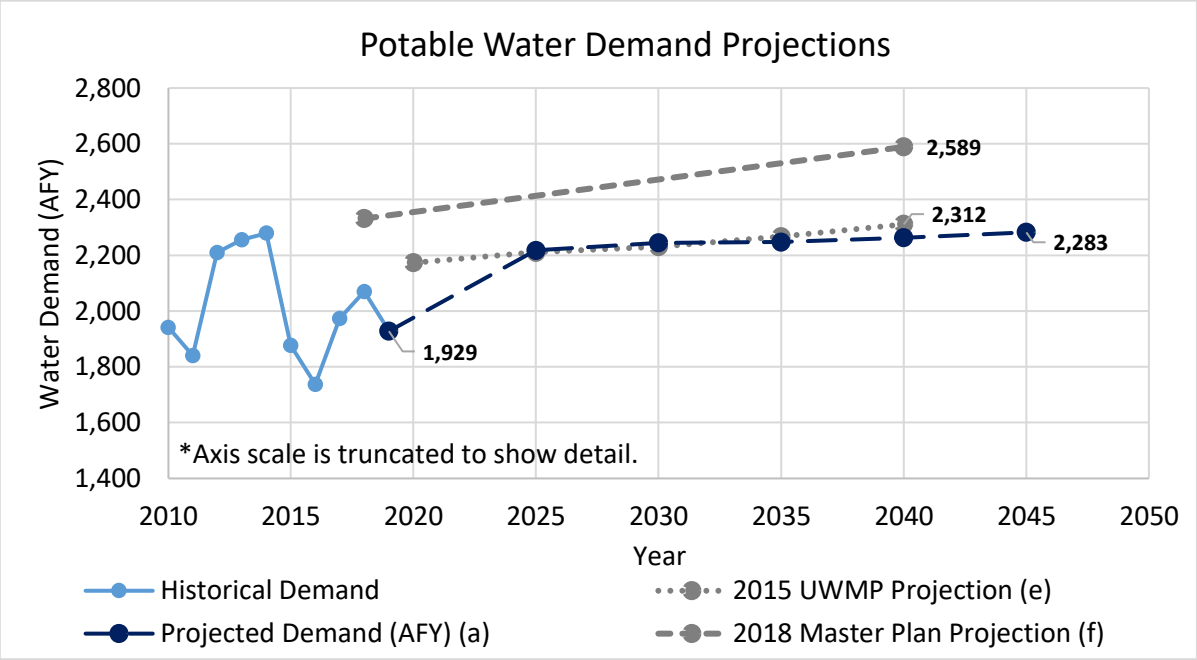
(c) Known planned development is discussed in Section 3.1 and based on References 2 and 3. It is assumed that one new account will be added for every 4 new multi-family residential dwelling units.

References:

1. ABAG, 2018. Association of Bay Area Governments, Plan Bay Area Projections 2040, released on November 2018.
2. Sonoma, 2020a. Development and Construction Report, provided by City of Sonoma 23 November 2020.
3. Sonoma, 2020b. Information provided by the City of Sonoma, received 21 July 2020.

Table 4-6
Projected Water Demand
City of Sonoma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Projected Demand (AFY) (a)				
	2025	2030	2035	2040	2045
Potable Water					
Single Family Residential	1,178	1,213	1,224	1,248	1,273
Multi-Family Residential	325	325	328	334	341
Commercial/Institutional	261	271	277	278	278
Landscape Irrigation	149	154	158	158	158
Other	173	179	180	184	187
Non-Revenue Water (b)	7.7%	7.7%	7.7%	7.7%	7.7%
	174	179	181	184	187
Estimated Passive Savings (c)	-42	-76	-101	-123	-141
Total Potable Demand	**2,218**	**2,244**	**2,247**	**2,263**	**2,283**
Recycled Water					
Recycled Water (d)	55	55	55	55	55
Total Recycled Water Demand	**55**	**55**	**55**	**55**	**55**



Abbreviations:
ABAG = Association of Bay Area Governments
AFY = acre-feet per year
AWE = Alliance for Water Efficiency
UWMP = Urban Water Management Plan

Table 4-6

Projected Water Demand

City of Sonoma, Sonoma-Marin Saving Water Partnership

Notes:

(a) Water demand projections are estimated based on partial rebound demand factors, based on recent historical use. Growth in accounts is based on ABAG 2018 projections, per Reference 1 and as identified in Table 4-1.
(b) Estimates of non-revenue water are based on the average percentage of water loss reported for 2017 through 2019, per Table 3-2.
(c) Passive water savings are based on the AWE Conservation Tracking Tool.
(d) Recycled water projections per Reference 2.
(e) 2015 UWMP projections per Reference 2.
(f) 2018 Master Plan projections per Reference 3.

References:

1. ABAG, 2018. Association of Bay Area Governments, Plan Bay Area Projections 2040, released on November 2018.
2. Sonoma, 2016. Urban Water Management Plan Final, City of Sonoma, prepared by Maddaus Water Management, dated 22 June 2016.
3. Sonoma, 2018. Final Water Master Plan Update, City of Sonoma, prepared by GHD, dated February 2018.

5. CONSERVATION PROGRAM PARTICIPATION

The following section evaluates past participation in water conservation programs by City 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).[4]

5.1. Conservation Programs

The City has recently implemented three conservation programs offered directly to customers:

- **High-Efficiency Toilet (HET) Rebate Program**. Get up to $150 back on the purchase and installation of each qualifying 0.8 gallon per flush (gpf) or less high-efficiency toilet (HET). This program is no longer offered by the City.

- **High Efficiency Faucet Aerator / Showerhead Giveaway**. Available at City Hall for the City's water customers, currently open by appointment due to the coronavirus pandemic.

- **High-Efficiency Clothes Washer (HECW) Rebate Program**. The City of Sonoma offers a rebate of $50 on high-efficiency clothes washers. Rebates are available for models listed under Tier 2 and Advanced Tier on the current Consortium for Energy Efficiency's "Super Efficient Home Appliance Initiative Clothes Washer Qualifying Product List." Models that use silver ion technology and models listed under Tier 1 are not eligible. Rebates available on a first come, first served basis through June 30, 2021 while funding lasts. The rebate application form is available on the SMSWP weg page: http://www.savingwaterpartnership.org/washer-rebate/.

- **Turf Rebate Program**. The City of Sonoma offers water customers a rebate for removing turf from their landscapes. Rebates are $1.00 per square foot of lawn removed with a total maximum rebate of $1,000 for residential customers and $3,000 for commercial customers. Requirements and a rebate application are available on the City's web site: https://www.sonomacity.org/documents/turf-removal-rebate-sonoma-42015/.

In addition to programs offered by the City, several regional programs are offered through the SMSWP, including: (1) education and outreach to schools, (2) public outreach and educational workshops, (3) Qualified Water Efficient Landscaper (QWEL) Training, and (4) garden tours.

5.2. Historical Conservation Program Participation

Table 5-1 summarizes participation in the City's conservation programs, including rebates for high-efficiency toilets, urinals, clothes washers and turf replacement from 2006 through 2019. Of these programs, the Turf Rebate Program has reached the most customers, with approximately 330 participants. Participation in the HECW rebate program was generally highest in 2010 and 2011, with

[4] 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.

participation generally declining since. Participation in the Turf Rebate Program was highest in 2009, and from 2014 to 2016, during the drought. Through the Turf Rebate Program, nearly 330,000 square feet of turf have been removed. There has been limited participation in the HET Rebate Program (not currently being offered), with only 12 customers having participated.

Table 5-2 summarizes participation in the regional SMSWP water conservation school education and outreach programs from the 2015-2016 to 2019-2020 school years. Over this period, over 1,700 students were reached by direct instruction and nearly 8,300 students were reached through indirect instruction such as assemblies, video and poster contests, and other educational materials.

5.3. Estimated Savings from Past Conservation Programs

5.3.1. Estimated Savings Based on AWE Model

The AWE model[5] was used to estimate water savings associated with the implementation of all device or turf replacement and audit programs identified in **Table 5-1** for the period of 2010 to 2020. Water savings estimates were based on AWE model default values, values developed for the City in 2015, or other literature values, as needed. The specific assumptions used in this assessment are presented in **Appendix C**. The results of this analysis are presented in **Table 5-3**.

Based on the record of water conservation program participation within the City and application of the AWE Model, it is estimated that the City conservation programs included in this assessment resulted in a savings of between 76 AFY and 87 AFY between 2010 and 2020.[6] In addition, over this period, it is estimated that the City saved 489 AFY through passive savings. Thus, the total active and passive savings achieved by the City between 2010 and 2020 is estimated to be between 500 AFY and 576 AFY.

[5] Alliance for Water Efficiency, Water Conservation Tracking Tool Version 3, released in July 2016.

[6] Free ridership refers to customers who participate in a conservation program, but who would have taken the water saving action (e.g., replace a toilet) regardless of whether the conservation program incentive was available. The amount of free ridership is unknown, and thus a range of savings is shown, assuming 0% to 100% free ridership for programs, as appropriate.

Table 5-1

Summary of Conservation Program Participation

City of Sonoma, Sonoma-Marin Saving Water Partnership

Program Name	End Use		Number of Program Participants														Pct. of Accounts (b)
	Sector (a)	Indoor/ Outdoor	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
HECW Rebate Program	SFR	Indoor	--	--	--	23	73	54	25	28	23	19	9	2	9	2	**267**	**7.5%**
HET Rebate Program	SFR	Indoor	--	--	--	--	5	1	2	0	0	1	2	1	--	--	**12**	**0.34%**
Turf Rebate Program	SFR	Outdoor	7	9	28	79	17	23	11	7	30	69	34	6	8	5	**333**	**9.4%**
			Total Turf Replaced (sq ft)														
Turf Rebate Program	SFR	Outdoor	4,915	3,948	21,932	102,114	16,461	19,941	8,927	8,476	31,604	58,501	30,875	6,586	5,982	5,554	**325,816**	--

Abbreviations

HECW = High Efficiency Clothes Washer

HET = High Efficiency Toilet

SFR = Single-family residential

sq ft = square feet

Notes

(a) Sector indicates predominant customer category for program participants.

(b) Participation is calculated as a percentage of total accounts of the predominant sector indicated.

(c) Colored shading is added for visualization purposes. Green shading represents higher participation values.

Table 5-2
Summary of Conservation Program Participation
City of Sonoma, Sonoma-Marin Saving Water Partnership

Program Name	Number of Students Reached by School Year					
	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	Total
Direct Instruction						
Kindergarten	0	134	67	116	145	**462**
3rd Grade	133	121	175	186	203	**818**
5th Grade	0	95	21	51	0	**167**
Middle/High School	95	26	153	0	0	**274**
Total	**228**	**376**	**416**	**353**	**348**	**1,721**
Indirect Instruction						
ZunZun Assembly	345	1,955	412	0	578	**3,290**
Video Contest	0	0	0	0	0	**0**
WA Poster Contest	0	141	162	70	97	**470**
Materials	1,533	1,053	891	497	526	**4,500**
Total	**1,878**	**3,149**	**1,465**	**567**	**1,201**	**8,260**

Abbreviations

SMSWP = Sonoma-Marin Saving Water Partnership

WA = Water Awareness

Notes

(a) School education program participation is presented by number of students reached, per SMSWP, 2020.

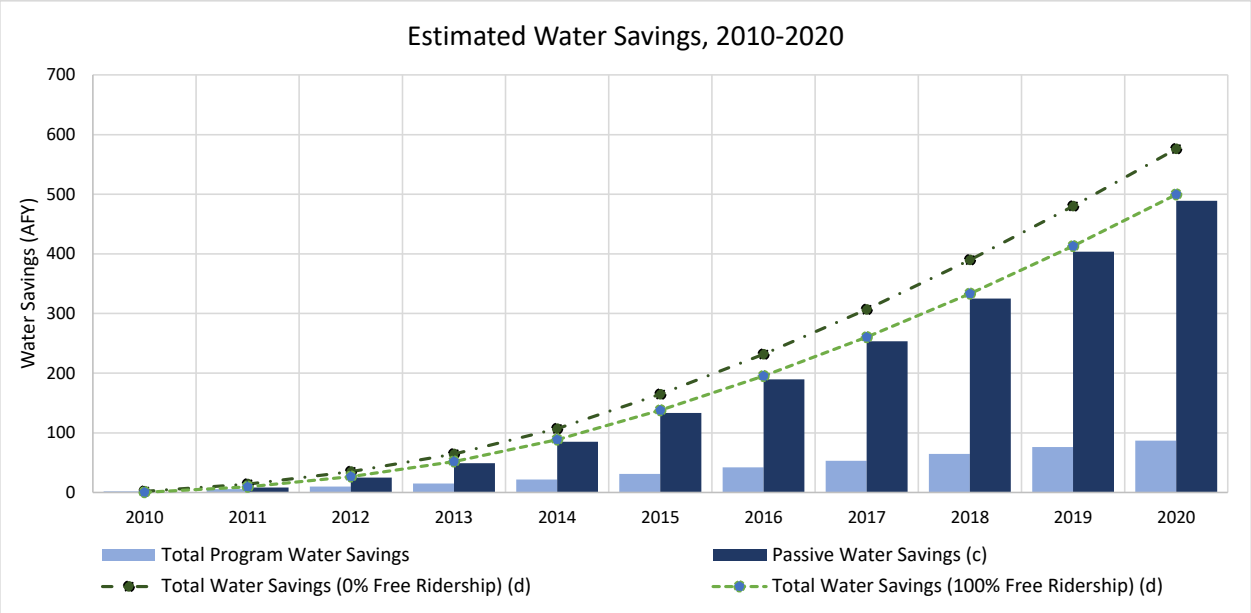
(b) Colored shading is added for visualization purposes. Green shading represents higher participation values.

Source

SMSWP, 2020. Water Conservation School Education Participation 2015 - 2020, provided by SMSWP, 8 June 2020.

Table 5-3
Estimated Water Savings Achieved by Conservation Programs and Passive Savings
City of Sonoma, Sonoma-Marin Saving Water Partnership

Water Saving Type	End Use		Estimated Cumulative Water Savings (AFY) (b)										
	Sector (a)	Indoor/ Outdoor	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Conservation Programs													
HECW Rebate Program	SFR	Indoor	1	3	5	8	10	13	16	19	22	25	27
HET Rebate Program	SFR	Indoor	0	0	1	1	1	1	2	2	2	3	3
Turf Rebate Program	SFR	Outdoor	1	2	4	7	10	17	24	32	41	49	57
Total Program Water Savings			*2*	*6*	*10*	*15*	*22*	*31*	*42*	*53*	*65*	*76*	*87*
Passive Water Savings (c)			*0*	*8*	*25*	*49*	*85*	*133*	*190*	*254*	*325*	*404*	*489*
Total Water Savings (100% Free Ridership) (d)			**0**	**9**	**27**	**52**	**89**	**138**	**195**	**260**	**333**	**413**	**500**
Total Water Savings (0% Free Ridership) (d)			**2**	**14**	**35**	**64**	**107**	**165**	**232**	**307**	**390**	**480**	**576**



Abbreviations
HET = High Efficiency Toilet
HECW = High Efficiency Clothes Washer
SFR = Single-family residential

Notes
(a) Predominant sector for program participants.
(b) Water savings are estimated per the AWE model.
(c) 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.
(d) Free ridership refers to customers who participate in a conservation program, but who would have taken the water saving action (e.g., replace a toilet) regardless of whether the conservation program incentive was available. The amount of free ridership is unknown, and thus a range is shown. Free ridership is applied to device and turf replacement programs only.

Sources
1. City of Sonoma, 2020. Program Participation Data, provided by City of Sonoma on 12 June 2020.

6. CONSERVATION PROGRAM UPDATE

The following section evaluates current and potential conservation programs for both the City and the SMSWP. The purpose of this section is to compile programs that are prioritized by both the City and by all Water Contractors in the SMSWP collectively in order to calculate the potential water savings and economic feasibility of those programs. Section 6.1 discusses the methodology used to prioritize conservation programs. Section 6.2 describes the programs given high priority for implementation by all nine Water Contractors collectively, and Section 6.3 describes programs given high priority by the City. Section 6.4 analyzes the potential water savings and cost-benefit for those programs selected by the City as both individual programs and in three implementation scenarios. By assessing the feasibility of these programs, the City can make more informed decisions regarding program selection and implementation.

6.1. Methodology for Screening of Potential Water Conservation Programs

In order to evaluate the potential for new conservation programs, a comprehensive list of over 100 conservation programs was developed (**Appendix D**). Each of the nine Water Contractors were first asked to review and identify any additional programs to add to this list. Following receipt of feedback from the Water Contractors, each Water Contractor was asked to review the list and identify:

- Priority (on a scale of 1 to 5, with 5 being the highest priority) as a program to be implemented regionally through the SMSWP;
- Priority (on a scale of 1 to 5, with 5 being the highest priority) as a program to be implemented locally through their agency;
- Preference for the program to be implemented either regionally or locally; and
- Whether each program is currently or has previously been implemented by their agency.

The list of water conservation programs 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. The results of the water conservation program prioritization and screening are summarized for all Water Contractors combined, representing overall regional priorities and preferences (**Table 6-1**), and for each individual Water Contractor, representing each agencies local priorities and preferences. **Table 6-1** shows the average prioritization ranking for all Water Contractors for each program for regional and local implementation as well as the percentage of Water Contractors that prefer each program to be implemented at the local level or the regional level.[7] The results presented in **Table 6-1** are discussed below for each water conservation program category. **Table 6-2** provides the results of this screening for the City, including priorities and preferences for each water conservation program, and identifies the target sector, whether the program addresses indoor or outdoor water use, and the primary end use.

[7] Water Contractors were asked to provide a preference for local or regional implementation for all programs they ranked a priority score of 3 or above. Thus, the percentages of Water Contractors shown in **Table 6-1** does not sum to 100%.

6.2. Screening of Regional Conservation Measures

6.2.1. Agency Actions and Water Rate Based Conservation Programs

Of the 15 agency action and water rate based conservation programs included in the screening list, the Water Contractors identified the following eleven programs as high priority (average score of three or higher) to implement at the local level:

1. Install Advanced Metering Infrastructure (AMI) for High Water Users and Large Landscape Accounts
2. Install AMI in New Development
3. Customer Water Loss Reduction (AMI Leak Detection)
4. Install AMI for Existing Accounts
5. Tiered Water Rates (Conservation Pricing)
6. Water Budgeting/Monitoring for Large Landscape Accounts
7. Water Budget Based Billing for Only Irrigation Customers
8. Modification to or Implementation of Tiered Rate Conservation Pricing
9. Establish Separate Pricing Structure for Irrigation Accounts
10. Rate Structure Evaluation
11. Increase Enforcement of State Water Waste Regulations

By their nature as water retailer actions, these programs do not lend themselves to regional implementation. However, in some cases, such as the "Increase Enforcement of State Water Waste Regulations" program, there may be an opportunity to coordinate across the region at a policy or education level. For example, SB-407[8] requires older plumbing fixtures to be replaced with new, more efficient fixtures that meet current water efficiency standards; this requirement is supposed to be enforced at time of sale. If this or similar policies are being enforced differently across Water Contractor jurisdictions, it could result in confusion among customers. Thus, even for agency action-based programs, there may be opportunity for the Water Contractors to coordinate these efforts and share staff education resources.

6.2.2. Public Outreach and Education Based Conservation Programs

Of the 11 public outreach and education-based water conservation programs included in the screening, the Water Contractors identified the following six programs as high priority (average score of three or higher), with a preference for regional implementation through SMSWP:

1. QWEL Training
2. Public Outreach through Print & Electronic Media – Focused on Outdoor Irrigation
3. Educational Workshops
4. School Education Programs
5. Public Outreach through Print & Electronic Media – Focused on Indoor Conservation
6. Garden tour

[8] SB 407: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100SB407

All of these programs are currently being implemented by the SMWSP. In addition to these programs, the Water Contractors also indicated that water use surveys or audits for single-family residential and CII customers were a high priority; however, the Water Contractors generally expressed a preference for these programs to be implemented locally.

6.2.3. Device and Financial Incentive Based Conservation Programs

Of the 61 device- and financial incentive- based water conservation programs included in the screening list, the Water Contractors identified the following 11 programs as high priority (average score of three or higher) to implement at either the regional or local level:

1. Landscape Conversion or Turf Removal – MFR and CII
2. Landscape Conversion or Turf Removal –SFR
3. High Efficiency Faucet Aerator / Showerhead Giveaway – Residential Customers
4. Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates – Large Landscape
5. Drip Irrigation Incentive for SFR
6. High Efficiency Faucet Aerator / Showerhead Giveaway – CII Customers
7. Drip Irrigation Incentive for MFR and CII
8. High Efficiency Clothes Washer Rebate – Residential
9. Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates – SFR
10. Restaurant Spray Nozzle Rebates
11. Incentivize Irrigation Equipment Upgrades – SFR

The above list includes four programs that focus on indoor water use ("High Efficiency Faucet Aerator / Showerhead Giveaway – Residential Customers", "High Efficiency Faucet Aerator / Showerhead Giveaway – CII Customers", "High Efficiency Clothes Washer Rebate – Residential," and "Restaurant Spray Nozzle Rebates"). The remaining preferred programs all focus on outdoor water use, including turf removal and methods to increase irrigation efficiency.

Of these preferred programs, the Water Contractors expressed a preference for two of the programs to be administered at a regional level rather than local level, specifically the "High Efficiency Clothes Washer Rebate – Residential" and the "Restaurant Spray Nozzle Rebates".

6.2.4. Policy and Regulation Based Conservation Programs

Of the 29 policy- and regulation- based water conservation programs included in the screening list, the Water Contractors identified the following six programs as high priority (average score of three or higher) to implement at the local level:

1. Water Waste Ordinance
2. Require Submetering of Landscaping for New MFR and Commercial Developments
3. Require Water Efficiency Plan Reviews for New CII Development
4. Require High Efficiency Clothes Washers in New Development
5. Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development
6. Demand Offset/Water Neutral Policy for Large New Developments

Nearly all of the highest priority programs focus on ensuring efficiency in new developments, and target both indoor and outdoor water use. The Water Contractors expressed that the program "Require Irrigation Designers / Installers be Certified (QWEL)" is a high priority at the local level but were split equally as to whether they would prefer this program to be implemented at a local or regional level. Further, given the shift in state policy regarding recycled water use (i.e., that non-potable use of recycled water use will no longer be counted towards water conservation), some Water Contractors were conflicted as to how recycled water should be considered in policies regarding new development, in particular with respect to the program "Demand Offset/Water Neutral Policy for Large New Development."

6.2.5. Regional Program Screening Findings

With some exceptions, the Water Contractors expressed a strong preference for water conservation programs to be implemented locally rather than regionally through the SMSWP, with the exception of programs that are already implemented regionally by the SMSWP. However, as listed above, there was general consensus among Water Contractors about which water conservation programs are a high priority, and thus important for the region. Given this consensus, while there is not an apparent desire to implement programs regionally, there may be opportunity for further coordination and collaboration on these programs, such as sharing of educational resources, training of staff (e.g., building permit and plan review staff), and collaboration on creating similar program structure and requirements (such as for financial incentive-based programs) across the region.

6.3. Screening of Local Conservation Measures

Table 6-2 shows the results of this screening for the City of Sonoma, and lists the programs considered by the City to be medium or high priority to consider for the future. **Table 6-2** also identifies the target sector, whether the program addresses indoor or outdoor water use, and the primary targeted end use.

- **Agency Actions and Water Rate Based Conservation Programs.** Five agency action and water rate based conservation programs were identified for potential future implementation. Of these, one is an existing action currently implemented by the City, and four are potential new programs for consideration. The high priority programs preferred by the City target both indoor and outdoor water use and focus primarily on water loss and irrigation efficiency end uses. The potential new programs identified are as follows, all of which were given high priority:

    - Customer Water Loss Reduction (AMI Leak Detection)
    - Install AMI for Existing Accounts
    - Install AMI for High Water Users and Large Landscape Accounts
    - Install AMI in New Development

- **Public Outreach and Education Based Conservation Programs.** Four public outreach and education based conservation programs were identified for potential future implementation. Of these, one is an existing action currently implemented by the City, and three are potential new programs for consideration. The high priority programs preferred by the City target both indoor and outdoor water use and cover a wide range of primary end uses. The potential new programs identified are as follows, in general order of priority:

- Public Outreach through Print & Electronic Media – Focused on Outdoor Irrigation
- School Education Programs
- Promote Green Building and Certification

- **Device and Financial Incentive Based Conservation Programs.** Eleven device and financial incentive based programs were ranked as medium to high priority for potential future implementation, including eight that would target indoor water use, two that would target outdoor water use, and one that would target both. Three of these programs are currently implemented by the City. The potential new programs identified are as follows, in general order of priority:

    - Nonresidential Incentive for Self-closing or Metering Faucets
    - High Efficiency Clothes Washer Rebate - Residential
    - Direct Install of Efficient Indoor Fixtures - Residential
    - High Efficiency Clothes Washer Rebate Program - CII
    - UHET <1.0 gal/flush Rebate - CII
    - UHET <1.0 gal/flush Rebate - Residential
    - UHET Direct Installation - Residential
    - Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs

- **Policy and Regulation Based Conservation Programs.** Nine policy and regulation based programs were identified as highest priority for potential future implementation, only two of which are currently administered by the City (i.e., "Require Water Efficiency Plan Reviews for New CII Development" and "Water Waste Ordinance"). These high-priority programs target both indoor and outdoor end uses and only one program is preferred to be implemented at the regional level (i.e., "Require Irrigation Designers / Installers be Certified [QWEL]"). The potential new programs identified are as follows, in general order of priority:

    - Require High Efficiency Clothes Washers in New Development
    - Require Efficient (EnergyStar) Dishwashers in New Development
    - Prohibit Once through Cooling Systems
    - Require Submetering of Landscaping for New MFR and Commercial Developments
    - Require <0.25 gal/flush Urinals in New Development
    - Require Irrigation Designers / Installers be Certified (QWEL)
    - Require <1.0 gal/flush Toilets in New Development

6.4. Evaluation of Future Water Conservation Programs

Based on the conservation screening process described in Sections 6.2 and 6.3 above, a suite of conservation programs to be considered for future implementation were evaluated. These programs were evaluated both individually and as components in three water conservation program scenarios, as shown in **Table 6-3a**. The three program scenarios represent three potential approaches or strategies for the City's future conservation programs, specifically:

- **Scenario A** represents a focus on programs that target outdoor water savings,
- **Scenario B** represents a more "business as usual" approach based on programs ranked most highly by the City, and

- **Scenario C** represents a focus on the programs that all nine Water Contractors collectively identified as highest priority.

Table 6-3a 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 C**.[9] Key assumptions and considerations related to the methodology used by the AWE model and in this analysis are provided below:

- Financial assumptions related to both costs to the utility and customer water rates were provided by the City.
- Financial assumptions related to energy costs to the customer were assumed based on typical PG&E rates (PG&E, 2020; PG&E and Sonoma Clean Power, 2020).
- Water savings assumptions were based on a combination of AWE model default assumptions, assumptions developed for the City as a part of the 2015 conservation modeling per Sonoma (2016), and water savings factors developed based on other published literature sources, as needed.
- Assumed rate of program implementation was based on historical participation levels by City customers in similar programs.
- For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2021 through 2025; water savings projections beyond this period reflect cumulative savings achieved over time from implementation during this five-year period.
- Benefit-costs ratios are particularly sensitive to the assumed nominal rate of increase of the utility water cost.
- 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 6-3b presents a comparison 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 2020 dollars.
- **Benefit to cost ratio** – calculated as present value of costs divided by the present value of benefits.
- **Water Utility Costs** – costs that the City 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 Water Contractor's service area.
- **Utility Benefits** – the avoided cost to the City to produce the volume of water saved.

[9] Alliance for Water Efficiency, Water Conservation Tracking Tool Version 3, released in July 2016.

- **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 City for program implementation from 2021-2025.
- **Water Savings in 2025** – one-year estimated water savings in 2025.
- **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 the individual programs by the cumulative water savings through 2045.

This 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 C**, the benefit-cost ratios for the City range from 0.66 to 22.

Table 6-3c presents the results of the analysis of the three conservation program scenarios identified in **Table 6-3a**, and includes a summary of costs and benefits to the City and customers, estimated cumulative water savings through 2045 (based on assumed program implementation from 2021-2025), and the estimated cost of water saved to the City. Based on this, the approach of focusing water conservation measures on those ranked highest by the City (i.e., Scenario B) has a greater benefit to cost ratio than that of Scenarios A or C. The projected water savings associated with implementation of Scenario B is 148 AF by 2025 and 706 by 2045, at a cost of approximately $1,386/AF.

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

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program	
	Regional	Local	Regional Program	Local Program		
AGENCY ACTIONS AND WATER RATES						
Install AMI for High Water Users and Large Landscape Accounts	2.5	4.7	11%	67%	No	✗
Install AMI in New Development	2.4	4.7	0%	67%	No	✗
Customer Water Loss Reduction (AMI Leak Detection)	2.4	4.4	0%	89%	No	✗
Install AMI for Existing Accounts	2.4	4.0	0%	86%	No	✗
Tiered Water Rates (Conservation Pricing)	2.0	3.6	0%	88%	No	✗
Water Budgeting/Monitoring for Large Landscape Accounts	2.5	3.4	0%	83%	No	✗
Water Budget Based Billing for Only Irrigation Customers	2.1	3.4	0%	86%	No	✗
Modification to or Implementation of Tiered Rate Conservation Pricing	2.0	3.4	0%	88%	No	✗
Establish Separate Pricing Structure for Irrigation Accounts	2.0	3.2	0%	83%	No	✗
Rate Structure Evaluation	2.4	3.1	0%	78%	No	✗
Increase Enforcement of State Water Waste Regulations	2.6	3.0	0%	86%	No	✗
Water Budget Based Billing for All Customers	2.3	2.4	0%	50%	No	✗
Increase Enforcement of Indoor Fixture Retrofit at Time of Sale	1.9	2.2	17%	67%	No	✗
Increase Enforcement of Customer Pressure Reducing Valve (PRV) Requirement	1.6	1.9	0%	40%	No	✗
Regional UHET and/or Urinal Bulk Purchase Program	1.9	1.7	75%	0%	No	✗
Average by Program Type	2.2	3.3				
PUBLIC OUTREACH AND EDUCATION						
QWEL Training (Qualified Water Efficient Landscaper)	4.3	2.0	89%	0%	Yes	✓
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	4.0	3.9	67%	0%	Yes	✓
Educational Workshops	4.0	3.2	63%	0%	Yes	✓
School Education Programs	4.0	3.1	78%	0%	Yes	✓

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

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program	
	Regional	Local	Regional Program	Local Program		
Water Use Surveys/Audits - SFR	3.5	3.9	22%	44%	No	✗
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	3.6	3.3	57%	0%	Yes	✓
Garden tour	3.6	1.9	86%	0%	Yes	✓
Water Use Surveys/Audits - CII	3.0	3.4	38%	38%	No	✗
Water Use Surveys/Audits - MFR	2.8	3.3	29%	43%	No	✗
Promote Green Building and Certification	3.1	2.2	33%	17%	No	✗
Provide Support with Smart Irrigation Controller Setup	2.9	2.3	60%	0%	No	✗
Average by Program Type	3.5	3.0				
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS						
Landscape Conversion or Turf Removal - MFR and CII	3.9	4.6	11%	78%	No	✗
Landscape Conversion or Turf Removal -SFR	3.9	4.6	22%	67%	No	✗
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	3.0	3.9	11%	44%	No	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates - Large Landscape	3.1	3.6	38%	38%	No	✗
Drip Irrigation Incentive for SFR	2.4	3.6	25%	50%	No	✗
High Efficiency Faucet Aerator / Showerhead Giveaway - CII Customers	2.9	3.4	14%	57%	No	✗
Drip Irrigation Incentive for MFR and CII	2.4	3.4	25%	50%	No	✗
High Efficiency Clothes Washer Rebate - Residential	3.3	3.3	44%	11%	Yes	✓
Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates - SFR	2.9	3.2	14%	57%	No	✗
Restaurant Spray Nozzle Rebates	3.1	2.8	50%	0%	No	✗
Incentivize Irrigation Equipment Upgrades - SFR	2.1	3.0	17%	50%	No	✗
Indoor Fixture Program For Schools	2.9	2.9	14%	71%	No	✗
Rotating Sprinkler Nozzle Rebate	2.9	2.9	40%	20%	No	✗

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

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program	
	Regional	Local	Regional Program	Local Program		
High Efficiency Clothes Washer Rebate Program - CII	2.8	2.8	29%	29%	No	✗
Direct Install of Efficient Indoor Fixtures - Low Income Residential	2.8	2.6	60%	0%	No	✗
Indoor Fixture Program For Hotels & Motels	2.8	2.2	29%	43%	No	✗
Mulch rebate	2.6	2.7	33%	50%	No	✗
Rain Sensor Rebate	2.5	2.6	33%	50%	No	✗
Incentivize Submetering for Existing Customers - CII	2.4	2.6	25%	25%	No	✗
Incentivize Submetering for Existing Customers - MFR	2.4	2.6	25%	25%	No	✗
Incentivize Gray Water Retrofit for Existing SFR Customers	2.3	2.6	20%	60%	No	✗
Toilet Flapper Giveaway - SFR customers	2.1	2.6	40%	40%	No	✗
Rotating Sprinkler Nozzle Giveaway	2.5	2.1	60%	0%	No	✗
Incentivize Replacement of Inefficient Commercial and Industrial Equipment	2.4	2.4	33%	33%	No	✗
Soil Moisture Sensor Rebate	2.4	2.4	60%	20%	No	✗
High Efficiency Urinal (<0.25 gal/flush) Rebates - CII	2.4	2.4	25%	0%	No	✗
Incentivize Gray Water Systems for New CII Development	2.3	2.4	50%	25%	No	✗
Incentivize Irrigation Equipment Upgrades - Large Landscapes	1.9	2.4	20%	40%	No	✗
Direct Install of Efficient Indoor Fixtures - Residential	2.4	2.2	50%	0%	No	✗
High Efficiency Clothes Washer Install - Low Income Residential Customers	2.4	2.2	50%	0%	No	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - Large Landscape	2.4	2.0	80%	0%	No	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - SFR	2.4	2.0	60%	20%	No	✗
Incentivize Artificial Turf for Sports Fields	2.3	2.3	75%	0%	No	✗
UHET <1.0 gal/flush Rebate - Residential	2.1	2.3	50%	17%	No	✗
Water Savings Incentive Program for CII	2.1	2.2	40%	40%	No	✗

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

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program	
	Regional	Local	Regional Program	Local Program		
Hot Water on Demand Pump System Rebate	2.0	2.2	60%	20%	No	✗
UHET Direct Installation - CII	2.1	1.8	40%	0%	No	✗
Plumber Initiated UHET and / or Urinal Retrofit Program	2.1	1.8	67%	0%	No	✗
Direct Install of Efficient Indoor Fixtures - Government Buildings	2.1	1.6	50%	0%	No	✗
Rain Barrel Rebate	1.9	2.1	40%	40%	No	✗
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	2.0	2.0	33%	33%	No	✗
Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates	2.0	1.9	50%	0%	No	✗
Dipper Well Rebates	2.0	1.8	50%	0%	No	✗
Rain Sensor Giveaway	2.0	1.7	75%	0%	No	✗
Rebates for Conductivity Controllers on Cooling Towers	2.0	1.6	75%	0%	No	✗
Rainwater Catchment System Rebate for Large Landscapes	1.9	2.0	50%	25%	No	✗
Nonresidential Incentive for Self-closing or Metering Faucets	1.9	1.9	33%	33%	No	✗
Efficient (EnergyStar) Dishwasher Rebates	1.9	1.8	50%	0%	No	✗
Rain Barrel Giveaway	1.9	1.7	75%	0%	No	✗
UHET Direct Installation - Residential	1.9	1.7	50%	0%	No	✗
Autoclave (Steam-Sterilizer) Retrofit Rebates	1.9	1.7	67%	0%	No	✗
Connectionless Food Steamer Rebates	1.9	1.7	67%	0%	No	✗
Dry Vacuum Pumps	1.9	1.6	33%	0%	No	✗
Incentivize Cooling Tower Upgrades	1.9	1.6	50%	0%	No	✗
UHET <1.0 gal/flush Rebate - CII	1.8	1.8	60%	20%	No	✗
Soil Moisture Sensor Giveaway	1.8	1.7	67%	0%	No	✗
Direct Install of Efficient Indoor Fixtures - Commercial and Industrial	1.8	1.7	67%	0%	No	✗

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

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program	
	Regional	Local	Regional Program	Local Program		
Swimming Pool and Hot Tub Cover Rebates	1.3	1.7	50%	25%	No	✗
Urinal Direct Installation - CII	1.5	1.4	50%	0%	No	✗
Tier 4 Exemption	1.3	1.4	25%	25%	No	✗
Incentivize Submetering of Cooling Towers for Existing Customers	1.3	1.4	50%	0%	No	✗
Average by Program Type	2.3	2.3				
POLICIES AND REGULATIONS						
Water Waste Ordinance	2.9	4.3	0%	63%	No	✗
Require Submetering of Landscaping for New MFR and Commercial Developments	2.8	4.0	0%	63%	No	✗
Require Water Efficiency Plan Reviews for New CII Development	2.5	3.7	14%	57%	No	✗
Require High Efficiency Clothes Washers in New Development	2.8	3.3	17%	67%	No	✗
Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development	2.4	3.1	0%	80%	No	✗
Require Irrigation Designers / Installers be Certified (QWEL)	3.0	2.9	40%	40%	No	✗
Demand Offset/Water Neutral Policy for Large New Developments	2.4	3.0	0%	83%	No	✗
Require Efficient (EnergyStar) Dishwashers in New Development	2.8	2.9	20%	60%	No	✗
Require <0.25 gal/flush Urinals in New Development	2.3	2.8	0%	67%	No	✗
Water Conserving Landscape and Irrigation Codes, More Stringent than MWELO	1.6	2.8	0%	67%	No	✗
Require Swimming Pool and Hot Tub Covers	2.0	2.7	40%	20%	No	✗
Require Submetering by Unit for New Commercial Developments	2.3	2.6	0%	50%	No	✗
Require Submetering of Landscaping for Existing MFR and Commercial Customers	2.4	2.4	0%	67%	No	✗
Require Hot Water on Demand / Structured Plumbing in New Residential Development	2.3	2.4	25%	50%	No	✗
Require Submetering by Unit for Existing Commercial Customers	2.1	2.4	0%	25%	No	✗

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

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program	
	Regional	Local	Regional Program	Local Program		
Require Submetering for New MFR Developments	1.9	2.4	0%	50%	No	✗
Require Plumbing for Recycled Water in New MFR Development	2.0	2.3	0%	60%	No	✗
Require <1.0 gal/flush Toilets in New Development	2.0	2.3	0%	80%	No	✗
Require Submetering for New Mobile Home Park Developments	2.0	2.3	0%	40%	No	✗
Prohibit Once through Cooling Systems	2.0	2.2	0%	50%	No	✗
Require Plumbing for Recycled Water in New CII Development	1.9	2.2	0%	60%	No	✗
Require On-Site Water Reuse Systems (Grey Water or Black Water) for Large CII Developments	1.8	2.1	25%	50%	No	✗
Require Plumbing for Gray Water in New SFR Development	1.6	2.1	0%	75%	No	✗
Require Submetering of Cooling Towers for New Development	2.0	1.9	0%	33%	No	✗
Require Submetering of Existing MFR (and Mobile Home Park) Customers	1.9	1.9	0%	50%	No	✗
Restrict Landscape Irrigation to Designated Days/Times	1.6	1.8	33%	0%	No	✗
Require Rain Barrels in New Development	1.5	1.8	0%	67%	No	✗
Require Submetering of Cooling Towers for Existing Customers	1.8	1.6	0%	50%	No	✗
Require Cooling Tower Retrofits	1.5	1.4	0%	33%	No	✗
Average by Program Type	2.1	2.5				

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

Abbreviations:

AMI = advanced metering infrastructure
CII = commercial, industrial, institutional
MFR = multi-family residential
MWELO = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marin 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) For each program a Water Contractor ranked as "3" or above, the Water Contractor was asked to indicate whether they would prefer the program to be administered regionally or locally. The results are presented as a percentage of the number of Water Contractors. Results of contractors who expressed "no preference" are not shown, and thus the total may not sum to 100% for a given measure.

Table 6-2
Prioritization of Conservation Measures and Programs
City of Sonoma, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Preference (b)	Local Program
AGENCY ACTIONS AND WATER RATES							
Customer Water Loss Reduction (AMI Leak Detection)	5	All	X	X	Water Loss	Locally	No
Install AMI for Existing Accounts	5	All	X	X	Water Loss	Locally	No
Install AMI for High Water Users and Large Landscape Accounts	5	All		X	Water Loss	No preference	No
Install AMI in New Development	5	All	X	X	Water Loss	No preference	No
Establish Separate Pricing Structure for Irrigation Accounts	4	IRR		X	Irrigation	Locally	Yes, currently
PUBLIC OUTREACH AND EDUCATION							
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	4	All	X		Irrigation	Regionally	No
Water Use Surveys/Audits - SFR	3	SFR	X	X	All	Locally	Yes, currently
School Education Programs	3	SFR, MFR	X	X	All	Regionally	No
Promote Green Building and Certification	3	All	X	X	All	No preference	No
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS							
Landscape Conversion or Turf Removal - MFR and CII	5	MFR, CII		X	Irrigation	Locally	Yes, currently
Landscape Conversion or Turf Removal -SFR	5	SFR		X	Irrigation	Locally	Yes, currently
Nonresidential Incentive for Self-closing or Metering Faucets	5	CII	X		Faucet	Locally	No
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	4	SFR, MFR	X		Faucet, Showerhead	Locally	Yes, currently
High Efficiency Clothes Washer Rebate - Residential	4	SFR, MFR	X		Clothes Washer	Regionally	No
Direct Install of Efficient Indoor Fixtures - Residential	4	SFR, MFR	X		Toilet, Faucet, Showerhead	Regionally	No
High Efficiency Clothes Washer Rebate Program - CII	3	CII	X		Clothes Washer	Regionally	No
UHET <1.0 gal/flush Rebate - CII	3	CII	X		Toilet	Regionally	No
UHET <1.0 gal/flush Rebate - Residential	3	SFR, MFR	X		Toilet	Regionally	No
UHET Direct Installation - Residential	3	SFR, MFR	X		Toilet	Regionally	No
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	3	All	X	X	Water loss; Irrigation	Locally	No
POLICIES AND REGULATIONS							
Water Waste Ordinance	5	All		X	All Outdoor	Locally	Yes, currently

Table 6-2
Prioritization of Conservation Measures and Programs
City of Sonoma, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Preference (b)	Local Program
Require High Efficiency Clothes Washers in New Development	5	SFR, MFR	X		Clothes Washer	Locally	No
Require Efficient (EnergyStar) Dishwashers in New Development	5	SFR, MFR	X		Dishwashers	Locally	No
Prohibit Once through Cooling Systems	5	CII	X	X	CII Equipment	No preference	No
Require Submetering of Landscaping for New MFR and Commercial Developments	4	CII		X	Irrigation	Locally	No
Require Water Efficiency Plan Reviews for New CII Development	4	CII	X	X	All Indoor	Locally	Yes, currently
Require <0.25 gal/flush Urinals in New Development	4	CII	X		Urinal	Locally	No
Require Irrigation Designers / Installers be Certified (QWEL)	4	All		X	Irrigation	Regionally	No
Require <1.0 gal/flush Toilets in New Development	4	All	X		Toilet	Locally	No

Abbreviations:
AMI = advanced metering infrastructure
CII = commercial, industrial, institutional
COM = commercial
IRR = irrigation account
MFR = multi-family residential
MWELO = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marin 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 locally-administered program, where 5 indicated highest priority and 1 indicated the lowest priority.

(b) For each program a Water Contractor ranked as "3" or above, the Water Contractor was asked to indicate whether they would prefer the program to be administered regionally or locally. N/A indicates no preference given for programs given a ranking lower than three for both local and regional priority.

Table 6-3a
Conservation Program Scenarios
City of Sonoma, Sonoma-Marin Saving Water Partnership

Program	Sector	Indoor/ Outdoor	Program Scenario (a)		
			A) Outdoor Programs	B) Highly-Ranked Local Programs	C) Highly-Ranked Regional Programs
Direct Install of Efficient Indoor Fixtures - Residential	SFR, MFR	Indoor		X	
High Efficiency Clothes Washer Rebate - Residential	SFR, MFR	Indoor		X	X
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	SFR, MFR	Indoor		X	X
Landscape Conversion or Turf Removal - MFR and CII	MFR, CII	Outdoor	X	X	X
Landscape Conversion or Turf Removal -SFR	SFR	Outdoor	X	X	X
Nonresidential Incentive for Self-closing or Metering Faucets	CII	Indoor		X	
Restaurant Spray Nozzle Rebates	CII	Indoor			X
Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates - Large Landscape	MFR, CII	Outdoor	X		X
Water Use Surveys/Audits - CII	CII	Both	X		X
Water Use Surveys/Audits - SFR	SFR	Both			X

Abbreviations

CII = Commercial, Industrial, and Institutional
MFR = multi-family residential
SFR = Single-family residential

Notes

(a) Program scenarios represent three potential approaches to program selection. Scenario A represents a focus on outdoor water savings, Scenario B represents a more "business as usual" approach based on programs ranked most highly by the City of Sonoma, and Scenario C represents a focus on the programs all nine Water Contractors collectively identified as highest priority.

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

Program (a)	Sector	Indoor/ Outdoor	Note	Present Value of Benefits		Present Value of Cost		Benefit to Cost Ratio		Water Utility Costs 2021-2025 (b)	Water Savings in 2025 (AFY)	Water Utility Cost of Water Saved ($/AF)
				Water Utility	Customers	Water Utility	Customers	Water Utility	Customers			
Direct Install of Efficient Indoor Fixtures - Residential	SFR, MFR	Indoor		$3,594,395	$3,037,532	$166,417	$39,389	22	77	$152,100	17	$163
High Efficiency Clothes Washer Rebate - Residential	SFR, MFR	Indoor		$46,589	$177,231	$8,534	$93,325	5.5	1.9	$7,800	1.7	$366
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	SFR, MFR	Indoor		$19,591	$47,365	$12,289	$19,694	1.6	2.4	$11,232	2.0	$1,104
Landscape Conversion or Turf Removal - MFR and CII	MFR, CII	Outdoor	(c)	$510,729	$1,259,085	$658,037	$684,835	0.78	1.8	$601,424	24	$2,441
Landscape Conversion or Turf Removal -SFR	SFR	Outdoor	(c)	$102,146	$257,959	$131,607	$136,967	0.78	1.9	$120,285	4.8	$2,441
Nonresidential Incentive for Self-closing or Metering Faucets	CII	Indoor		$3,595	$8,607	$1,778	$4,103	2.0	2.1	$1,625	0.17	$937
Restaurant Spray Nozzle Rebates	CII	Indoor		$32,814	$114,777	$1,778	$1,368	18	84	$1,625	3.4	$95
Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates - Large Landscape	MFR, CII	Outdoor		$158,589	$415,997	$35,559	$13,677	4.5	30	$32,500	7.4	$425
Water Use Surveys/Audits - CII	CII	Both		$36,143	$82,261	$54,707	$68,383	0.66	1.2	$50,000	3.8	$2,630
Water Use Surveys/Audits - SFR	SFR	Both		$29,437	$80,200	$25,603	$6,565	1.1	12	$23,400	3.1	$1,511

Abbreviations

AFY = acre-feet per year
CII = Commercial, Industrial, and Institutional
MFR = multi-family residential
SFR = Single-family residential
sq ft = square feet
$/AF = dollars per acre-foot

Notes

(a) Estimated water savings, benefits, and costs are calculated using the AWE model. Assumptions used are presented in Appendix C.
(b) For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2021 through 2025.
(c) Evaluation of this program assumed a rebate amount of $0.85/square foot plus adminstrative cost. It is noted that a lower rebate would result in a benefit cost ratio of greater than 1.

Table 6-3c
Comparison of Program Scenarios – Costs and Savings
City of Sonoma, Sonoma-Marin Saving Water Partnership

Scenario (a)	Present Value of Benefits		Present Value of Cost		Benefit to Cost Ratio		Cumulative 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) Outdoor Programs	$807,607	$2,015,302	$879,910	$903,862	0.92	2.2	121	307	380	380	380	$2,319
B) Highly-Ranked Local Programs	$4,277,045	$4,787,780	$978,663	$978,313	4.4	4.9	148	388	536	622	706	$1,386
C) Highly-Ranked Regional Programs	$936,038	$2,434,874	$928,114	$1,024,813	1.0	2.4	153	362	440	442	442	$2,099

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 2021 through 2025. Cumulative water savings achieved beyond 2025 reflect the ongoing benefit of program implementation.
(b) The water utility cost is based on the cumulative savings achieved through 2045 cumulative water savings.

7. CONCLUSION

This report presents the results of demand analysis and projections, 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 City and reflect a land-use based approach consistent with the City's community planning, using the best available information. 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 significant 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.[10] California experienced a historic drought between 2011-2017. In 2014, Governor Brown issued Executive Order B-26-14 declaring a Drought State of Emergency and requested all Californians to voluntarily reduce water use by 20%. In 2015, the State Water Resources Control Board implemented emergency conservation regulations that, among other things, required water agencies to reduce their water use and prohibited certain types of water uses. As a result, the City experienced an overall decrease in demands during the historic drought, most significantly during 2015. The demand factors evaluated herein consider both the 2011-2013 period, in which customers increased their water use (in part due to the drought conditions, prior to the imposed restrictions), as well as the observed rebound in demand following the drought (2017-2019). Thus, the periods used to develop the demand projections reflect conditions representative of the hotter, drier weather expected as a result of climate change.

[10] 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.

8. REFERENCES

ABAG, 2013. Association of Bay Area Governments, Plan Bay Area Projections 2013, adopted on 18 July 2013.

ABAG, 2018. Association of Bay Area Governments, Plan Bay Area Projections 2040, released November 2018.

AWE, 2016. Water Conservation Tracking Tool Version 3, Alliance for Water Efficiency, released in July 2016.

DOF, 2020. California Department of Finance – Demographic Research Unit, Total Estimated and Projected Population for California and Counties: July 1, 2010 to July 1, 2060 in 1-year Increments, Report P-1, released on 10 January 2020.

PG&E, 2020. Gas Rate Finder, Volume 48-G, No.3, dated in March 2020 (https://www.pge.com/tariffs/GRF0320.pdf).

PG&E and Sonoma Clean Power, 2020. Joint Rate Comparisons, dated July 2020 (https://www.pge.com/pge_global/common/pdfs/customer-service/other-services/alternative-energy-providers/community-choice-aggregation/scp_rateclasscomparison.pdf).

Sonoma, 2016. 2015 Urban Water Management Plan, prepared by Maddaus Water Management, dated 22 June 2016.

Sonoma, 2018. Final Water Master Plan Update, City of Sonoma, prepared by GHD, dated February 2018.

Sonoma, 2020a. DWR System Reports from 2010-2019, provided by the City of Sonoma on 12 June 2020.

Sonoma, 2020b. Development and Construction Report, provided by City of Sonoma 23 November 2020.

Appendix A

California Water Code Revisions per AB-1668, SB-606, and SB-664, Redlines prepared by DWR

SB-664 Water: urban water management planning. (2015-2016)

As Amends the Law Today **As Amends the Law on Nov 20, 2015**

SECTION 1. *Section 10632.5 is added to the Water Code, to read:*

10632.5. *(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.*

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

AB-1668 Water management planning. (2017-2018)

As Amends the Law Today | **As Amends the Law on Nov 08, 2018**

SECTION 1. Section 531.10 of the Water Code is amended to read:

531.10. (a) (1) An agricultural water supplier shall submit an annual report to the department that summarizes aggregated farm-gate delivery data, on a monthly or bimonthly basis, using best professional practices. The annual report for the prior year shall be submitted to the department by April 1 of each year. The annual report shall be organized by basin, as defined in Section 10721, within the service area of the agricultural water supplier, if applicable.

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

(3) The department shall post all reports on its Internet Web site in a manner that allows for comparisons across water suppliers. The department shall make the reports available for public viewing in a timely manner after it receives them.

(b) Nothing in this article shall be construed to require the implementation of water measurement programs or practices that are not locally cost effective.

(c) It is the intent of the Legislature that the requirements of this section shall complement and not affect the scope of authority granted to the department or the board by provisions of law other than this article.

SEC. 2. Section 1120 of the Water Code is amended to read:

1120. This chapter applies to any decision or order issued under this part or Section 275, Part 2 (commencing with Section 1200), Part 2 (commencing with Section 10500) of Division 6, Part 2.55 (commencing with Section 10608) of Division 6, or Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6, Article 7 (commencing with Section 13550) of Chapter 7 of Division 7, or the public trust doctrine.

SEC. 3. *Section 1846.5 is added to the Water Code, to read:*

1846.5. *(a) An urban retail water supplier who commits any of the violations identified in subdivision (b) may be liable in an amount not to exceed the following, as applicable:*

(1) If the violation occurs in a critically dry year immediately preceded by two or more consecutive below normal, dry, or critically dry years or during a period for which the Governor has issued a proclamation of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, ten thousand dollars ($10,000) for each day in which the violation occurs.

(2) For all violations other than those described in paragraph (1), one thousand dollars ($1,000) for each day in which the violation occurs.

(b) Liability pursuant to this section may be imposed for any of the following violations:

(1) Violation of an order issued under Chapter 9 (commencing with Section 10609) of Part 2.55 of Division 6.

(2) Violation of a regulation issued under Chapter 9 (commencing with Section 10609) of Part 2.55 of Division 6, if the violation occurs after November 1, 2027.

(c) Civil liability may be imposed by the superior court. The Attorney General, upon the request of the board, shall petition the superior court to impose, assess, and recover those sums.

(d) Civil liability may be imposed administratively by the board pursuant to Section 1055.

SEC. 4. Section 10608.12 of the Water Code is amended to read:

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "CII water use" means water used by commercial water users, industrial water users, institutional water users, and large landscape water users.

(e) "Commercial water user" means a water user that provides or distributes a product or service.

(f) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(g) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(h) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(i) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(j) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(k) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(l) "Large landscape" means a nonresidential landscape as described in the performance measures for CII water use adopted pursuant to Section 10609.10.

(m) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(n) "Performance measures" means actions to be taken by urban retail water suppliers that will result in increased water use efficiency by CII water users. Performance measures may include, but are not limited to, educating CII water users on best management practices, conducting water use audits, and preparing water management plans. Performance measures do not include process water.

(o) "Potable reuse" means direct potable reuse, indirect potable reuse for groundwater recharge, and reservoir water augmentation as those terms are defined in Section 13561.

(p) "Process water" means water used by industrial water users for producing a product or product content or water used for research and development. Process water includes, but is not limited to, continuous manufacturing processes, and water used for testing, cleaning, and maintaining equipment. Water used to cool machinery or buildings used in the manufacturing process or necessary to maintain product quality or chemical characteristics for product manufacturing or control rooms, data centers, laboratories, clean rooms, and other industrial facility units that are integral to the manufacturing or research and development process is process water. Water used in the manufacturing process that is necessary for complying with local, state, and federal health and safety laws, and is not incidental water, is process water. Process water does not mean incidental water uses.

(q) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050.

(r) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(s) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(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.

(u) "Urban water use objective" means an estimate of aggregate efficient water use for the previous year based on adopted water use efficiency standards and local service area characteristics for that year, as described in Section 10609.20.

(v) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(w) "Urban wholesale water ~~supplier"~~ *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.

SEC. 5. Section 10608.20 of the Water Code is amended to read:

10608.20. (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in paragraph (1) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's ~~2017~~ *2016* report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its ~~internet website,~~ *Internet Web site,* and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

(2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

SEC. 6. Section 10608.48 of the Water Code is amended to read:

10608.48. (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement both of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

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

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

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

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

(7) Construct and operate supplier spill and tailwater recovery systems.

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

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

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

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

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

(14) Evaluate and improve the efficiencies of the supplier’s pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The department shall require information about the implementation of efficient water management practices to be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

SEC. 7. *Chapter 9 (commencing with Section 10609) is added to Part 2.55 of Division 6 of the Water Code, to read:*

CHAPTER 9. Urban Water Use Objectives and Water Use Reporting

10609. *(a) The Legislature finds and declares that this chapter establishes a method to estimate the aggregate amount of water that would have been delivered the previous year by an urban retail water supplier if all that water had been used efficiently. This estimated aggregate water use is the urban retail water supplier's urban water use objective. The method is based on water use efficiency standards and local service area characteristics for that year. By comparing the amount of water actually used in the previous year with the urban water use objective, local urban water suppliers will be in a better position to help eliminate unnecessary use of water; that is, water used in excess of that needed to accomplish the intended beneficial use.*

(b) The Legislature further finds and declares all of the following:

(1) This chapter establishes standards and practices for the following water uses:

(A) Indoor residential use.

(B) Outdoor residential use.

(C) CII water use.

(D) Water losses.

(E) Other unique local uses and situations that can have a material effect on an urban water supplier's total water use.

(2) This chapter further does all of the following:

(A) Establishes a method to calculate each urban water use objective.

(B) Considers recycled water quality in establishing efficient irrigation standards.

(C) Requires the department to provide or otherwise identify data regarding the unique local conditions to support the calculation of an urban water use objective.

(D) Provides for the use of alternative sources of data if alternative sources are shown to be as accurate as, or more accurate than, the data provided by the department.

(E) Requires annual reporting of the previous year's water use with the urban water use objective.

(F) Provides a bonus incentive for the amount of potable recycled water used the previous year when comparing the previous year's water use with the urban water use objective, of up to 10 percent of the urban water use objective.

(3) This chapter requires the department and the board to solicit broad public participation from stakeholders and other interested persons in the development of the standards and the adoption of regulations pursuant to this chapter.

(4) This chapter preserves the Legislature's authority over long-term water use efficiency target setting and ensures appropriate legislative oversight of the implementation of this chapter by doing all of the following:

(A) Requiring the Legislative Analyst to conduct a review of the implementation of this act, including compliance with the adopted standards and regulations, accuracy of the data, use of alternate data, and other issues the Legislative Analyst deems appropriate.

(B) Stating legislative intent that the director of the department and the chairperson of the board appear before the appropriate Senate and Assembly policy committees to report on progress in implementing this chapter.

(C) Providing one-time-only authority to the department and board to adopt water use efficiency standards, except as explicitly provided in this chapter. Authorization to update the standards shall require separate legislation.

(c) It is the intent of the Legislature that the following principles apply to the development and implementation of long-term standards and urban water use objectives:

(1) Local urban retail water suppliers should have primary responsibility for meeting standards-based water use targets, and they shall retain the flexibility to develop their water supply portfolios, design and implement water conservation strategies, educate their customers, and enforce their rules.

(2) Long-term standards and urban water use objectives should advance the state's goals to mitigate and adapt to climate change.

(3) Long-term standards and urban water use objectives should acknowledge the shade, air quality, and heat-island reduction benefits provided to communities by trees through the support of water-efficient irrigation practices that keep trees healthy.

(4) The state should identify opportunities for streamlined reporting, eliminate redundant data submissions, and incentivize open access to data collected by urban and agricultural water suppliers.

10609.2. *(a) The board, in coordination with the department, shall adopt long-term standards for the efficient use of water pursuant to this chapter on or before June 30, 2022.*

(b) Standards shall be adopted for all of the following:

(1) Outdoor residential water use.

(2) Outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use.

(3) A volume for water loss.

(c) When adopting the standards under this section, the board shall consider the policies of this chapter and the proposed efficiency standards' effects on local wastewater management, developed and natural parklands, and urban tree health. The standards and potential effects shall be identified by May 30, 2022. The board shall allow for public comment on potential effects identified by the board under this subdivision.

(d) The long-term standards shall be set at a level designed so that the water use objectives, together with other demands excluded from the long-term standards such as CII indoor water use and CII outdoor water use not connected to a dedicated landscape meter, would exceed the statewide conservation targets required pursuant to Chapter 3 (commencing with Section 10608.16).

(e) The board, in coordination with the department, shall adopt by regulation variances recommended by the department pursuant to Section 10609.14 and guidelines and methodologies pertaining to the calculation of an urban retail water supplier's urban water use objective recommended by the department pursuant to Section 10609.16.

10609.4. *(a) (1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily.*

(2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be the greater of 52.5 gallons per capita daily or a standard recommended pursuant to subdivision (b).

(3) Beginning January 1, 2030, the standard for indoor residential water use shall be the greater of 50 gallons per capita daily or a standard recommended pursuant to subdivision (b).

(b) (1) The department, in coordination with the board, shall conduct necessary studies and investigations and may jointly recommend to the Legislature a standard for indoor residential water use that more appropriately reflects best practices for indoor residential water use than the standard described in subdivision (a). A report on the results of the studies and investigations shall be made to the chairpersons of the relevant policy committees of each house of the Legislature by January 1, 2021, and shall include information necessary to support the recommended standard, if there is one. The studies and investigations shall also include an analysis of the benefits and impacts of how the changing standard for indoor residential water use will impact water and wastewater management, including potable water usage, wastewater, recycling and reuse systems, infrastructure, operations, and supplies.

(2) The studies, investigations, and report described in paragraph (1) shall include collaboration with, and input from, a broad group of stakeholders, including, but not limited to, environmental groups, experts in indoor plumbing, and water, wastewater, and recycled water agencies.

10609.6. *(a) (1) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor residential use for adoption by the board in accordance with this chapter.*

(2) (A) The standards shall incorporate the principles of the model water efficient landscape ordinance adopted by the department pursuant to the Water Conservation in Landscaping Act (Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code).

(B) The standards shall apply to irrigable lands.

(C) The standards shall include provisions for swimming pools, spas, and other water features. Ornamental water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, shall be analyzed separately from swimming pools and spas.

(b) The department shall, by January 1, 2021, provide each urban retail water supplier with data regarding the area of residential irrigable lands in a manner that can reasonably be applied to the standards adopted pursuant to this section.

(c) The department shall not recommend standards pursuant to this section until it has conducted pilot projects or studies, or some combination of the two, to ensure that the data provided to local agencies are reasonably accurate for the data's intended uses, taking into consideration California's diverse landscapes and community characteristics.

10609.8. *(a) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor irrigation of landscape areas with dedicated irrigation meters or other means of calculating outdoor irrigation use in connection with CII water use for adoption by the board in accordance with this chapter.*

(b) The standards shall incorporate the principles of the model water efficient landscape ordinance adopted by the department pursuant to the Water Conservation in Landscaping Act (Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code).

(c) The standards shall include an exclusion for water for commercial agricultural use meeting the definition of subdivision (b) of Section 51201 of the Government Code.

10609.9. *For purposes of Sections 10609.6 and 10609.8, "principles of the model water efficient landscape ordinance" means those provisions of the model water efficient landscape ordinance applicable to the establishment or determination of the amount of water necessary to efficiently irrigate both new and existing landscapes. These provisions include, but are not limited to, all of the following:*

(a) Evapotranspiration adjustment factors, as applicable.

(b) Landscape area.

(c) Maximum applied water allowance.

(d) Reference evapotranspiration.

(e) Special landscape areas, including provisions governing evapotranspiration adjustment factors for different types of water used for irrigating the landscape.

10609.10. *(a) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, performance measures for CII water use for adoption by the board in accordance with this chapter.*

(b) Prior to recommending performance measures for CII water use, the department shall solicit broad public participation from stakeholders and other interested persons relating to all of the following:

(1) Recommendations for a CII water use classification system for California that address significant uses of water.

(2) Recommendations for setting minimum size thresholds for converting mixed CII meters to dedicated irrigation meters, and evaluation of, and recommendations for, technologies that could be used in lieu of requiring dedicated irrigation meters.

(3) Recommendations for CII water use best management practices, which may include, but are not limited to, water audits and water management plans for those CII customers that exceed a recommended size, volume of water use, or other threshold.

(c) Recommendations of appropriate performance measures for CII water use shall be consistent with the October 21, 2013, report to the Legislature by the Commercial, Industrial, and Institutional Task Force entitled "Water Use Best Management Practices," including the technical and financial feasibility recommendations provided in that report, and shall support the economic productivity of California's commercial, industrial, and institutional sectors.

(d) (1) The board, in coordination with the department, shall adopt performance measures for CII water use on or before June 30, 2022.

(2) Each urban retail water supplier shall implement the performance measures adopted by the board pursuant to paragraph (1).

10609.12. *The standards for water loss for urban retail water suppliers shall be the standards adopted by the board pursuant to subdivision (i) of Section 10608.34.*

10609.14. *(a) The department, in coordination with the board, shall conduct necessary studies and investigations and, no later than October 1, 2021, recommend for adoption by the board in accordance with this chapter appropriate variances for unique uses that can have a material effect on an urban retail water supplier's urban water use objective.*

(b) Appropriate variances may include, but are not limited to, allowances for the following:

(1) Significant use of evaporative coolers.

(2) Significant populations of horses and other livestock.

(3) Significant fluctuations in seasonal populations.

(4) Significant landscaped areas irrigated with recycled water having high levels of total dissolved solids.

(5) Significant use of water for soil compaction and dust control.

(6) Significant use of water to supplement ponds and lakes to sustain wildlife.

(7) Significant use of water to irrigate vegetation for fire protection.

(8) Significant use of water for commercial or noncommercial agricultural use.

(c) The department, in recommending variances for adoption by the board, shall also recommend a threshold of significance for each recommended variance.

(d) Before including any specific variance in calculating an urban retail water supplier's water use objective, the urban retail water supplier shall request and receive approval by the board for the inclusion of that variance.

(e) The board shall post on its Internet Web site all of the following:

(1) A list of all urban retail water suppliers with approved variances.

(2) The specific variance or variances approved for each urban retail water supplier.

(3) The data supporting approval of each variance.

10609.15. *To help streamline water data reporting, the department and the board shall do all of the following:*

(a) Identify urban water reporting requirements shared by both agencies, and post on each agency's Internet Web site how the data is used for planning, regulatory, or other purposes.

(b) Analyze opportunities for more efficient publication of urban water reporting requirements within each agency, and analyze how each agency can integrate various data sets in a publicly accessible location, identify priority actions, and implement priority actions identified in the analysis.

(c) Make appropriate data pertaining to the urban water reporting requirements that are collected by either agency available to the public according to the principles and requirements of the Open and Transparent Water Data Act (Part 4.9 (commencing with Section 12400)).

10609.16. *The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, guidelines and methodologies for the board to adopt that identify how an urban retail water supplier calculates its urban water use objective. The guidelines and methodologies shall address, as necessary, all of the following:*

(a) Determining the irrigable lands within the urban retail water supplier's service area.

(b) Updating and revising methodologies described pursuant to subparagraph (A) of paragraph (1) of subdivision (h) of Section 10608.20, as appropriate, including methodologies for calculating the population in an urban retail water supplier's service area.

(c) Using landscape area data provided by the department or alternative data.

(d) Incorporating precipitation data and climate data into estimates of a urban retail water supplier's outdoor irrigation budget for its urban water use objective.

(e) Estimating changes in outdoor landscape area and population, and calculating the urban water use objective, for years when updated landscape imagery is not available from the department.

(f) Determining acceptable levels of accuracy for the supporting data, the urban water use objective, and compliance with the urban water use objective.

10609.18. *The department and the board shall solicit broad public participation from stakeholders and other interested persons in the development of the standards and the adoption of regulations pursuant to this chapter. The board shall hold at least one public meeting before taking any action on any standard or variance recommended by the department.*

SEC. 8. *Chapter 10 (commencing with Section 10609.40) is added to Part 2.55 of Division 6 of the Water Code, to read:*

CHAPTER 10. Countywide Drought and Water Shortage Contingency Plans

10609.40. *The Legislature finds and declares both of the following:*

(a) Small water suppliers and rural communities are often not covered by established water shortage planning requirements. Currently, most counties do not address water shortages or do so minimally in their general plan or the local hazard mitigation plan.

(b) The state should provide guidance to improve drought planning for small water suppliers and rural communities.

10609.42. *(a) No later than January 1, 2020, the department, in consultation with the board and other relevant state and local agencies and stakeholders, shall use available data to identify small water suppliers and rural communities that may be at risk of drought and water shortage vulnerability. The department shall notify counties and groundwater sustainability agencies of those suppliers or communities that may be at risk within its jurisdiction, and may make the information publicly accessible on its Internet Web site.*

(b) The department shall, in consultation with the board, by January 1, 2020, propose to the Governor and the Legislature recommendations and guidance relating to the development and implementation of countywide drought and water shortage contingency plans to address the planning needs of small water suppliers and rural communities. The department shall recommend how these plans can be included in county local hazard

mitigation plans or otherwise integrated with complementary existing planning processes. The guidance from the department shall outline goals of the countywide drought and water shortage contingency plans and recommend components including, but not limited to, all of the following:

(1) Assessment of drought vulnerability.

(2) Actions to reduce drought vulnerability.

(3) Response, financing, and local communication and outreach planning efforts that may be implemented in times of drought.

(4) Data needs and reporting.

(5) Roles and responsibilities of interested parties and coordination with other relevant water management planning efforts.

(c) In formulating the proposal, the department shall utilize a public process involving state agencies, cities, counties, small communities, small water suppliers, and other stakeholders.

SEC. 9. Section 10801 of the Water Code is amended to read:

10801. The Legislature finds and declares all of the following:

(a) The waters of the state are a limited and renewable resource.

(b) The California Constitution requires that water in the state be used in a reasonable and beneficial manner.

(c) The efficient use of agricultural water supplies is of great statewide concern.

(d) There is a great amount of reuse of delivered water, both inside and outside the water service areas of agricultural water suppliers.

(e) Significant noncrop beneficial uses are associated with agricultural water use, including the preservation and enhancement of fish and wildlife resources.

(f) Significant opportunities exist in some areas, through improved irrigation water management, to conserve water or to reduce the quantity of highly saline or toxic drainage water.

(g) Changes in water management practices should be carefully planned and implemented to minimize adverse effects on other beneficial uses currently being served.

(h) Agricultural water suppliers that receive water from the federal Central Valley Project are required by federal law to prepare and implement water conservation plans.

(i) Agricultural water users applying for a permit to appropriate water from the board are required to prepare and implement water conservation plans.

SEC. 10. Section 10802 of the Water Code is amended to read:

10802. The Legislature finds and declares that all of the following are the policies of the state:

(a) The efficient use of water shall be pursued actively to protect both the people of the state and the state's water resources.

(b) The efficient use of agricultural water supplies shall be an important criterion in public decisions with regard to water.

(c) Agricultural water suppliers shall be required to prepare water management plans to achieve greater efficiency in the use of water.

SEC. 11. Section 10814 of the Water Code is amended to read:

10814. "Person" has the same meaning as defined in Section 10614.

SEC. 12. Section 10817 of the Water Code is amended to read:

10817. "Water use efficiency" means the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water.

SEC. 13. Section 10820 of the Water Code is amended to read:

10820. (a) (1) Except as provided in paragraph (2), an agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015.

(2) (A) The agricultural water management plan shall be updated on or before April 1, 2021, and thereafter on or before April 1 in the years ending in six and one. The plan shall satisfy the requirements of Section 10826.

(B) An agricultural water supplier shall submit its plan to the department no later than 30 days after the adoption of the plan. The plan shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

(b) (1) The department shall review each plan that is due pursuant to paragraph (2) of subdivision (a). The department may coordinate its review with the Department of Food and Agriculture and the board.

(2) The department shall notify an agricultural water supplier that it is not in compliance with this part if the department determines that actions are required to comply with the requirements of this part or if a supplier fails to update a plan as provided in paragraph (2) of subdivision (a). The department shall identify the specific deficiencies and the supplier shall have 120 days to remedy an identified deficiency. The department may provide additional time to remedy a deficiency if it finds that a supplier is making substantial progress toward remedying the deficiency. An agricultural water supplier that fails to submit corrective actions or a completed plan shall not be in compliance with this part.

(3) If the department has not received a plan or the department has determined that the plan submitted does not comply with the requirements of this part, and a revised plan has not been submitted, the department may undertake the following actions:

(A) Contract with a state academic institution or qualified entity to prepare or complete an agricultural water management plan on behalf of the supplier. The costs and expenses related to preparation or completion of a plan, including the costs of the contract and contract administration, shall be recoverable by the department from the supplier.

(B) If a supplier does not provide data necessary for the preparation or completion of a plan to the department or the contracting entity as determined by the department in accordance with subparagraph (A), the department may assess a fine of one thousand dollars ($1,000) per day, not to exceed twenty-five thousand dollars ($25,000), until data is made available.

(4) (A) A plan prepared or completed pursuant to paragraph (3) shall be deemed the adopted plan for the supplier.

(B) Any action to challenge or invalidate the adequacy of the plan prepared or completed pursuant to paragraph (3) shall be brought against the supplier for whom the plan was prepared.

(c) Every supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt an agricultural water management plan within one year after the date it has become an agricultural water supplier.

(d) A water supplier that indirectly provides water to customers for agricultural purposes shall not prepare a plan pursuant to this part without the consent of each agricultural water supplier that directly provides that water to its customers.

SEC. 14. Section 10825 of the Water Code is amended to read:

10825. (a) It is the intent of the Legislature in enacting this part to allow levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

(b) This part does not require the implementation of water use efficiency programs or practices that are not locally cost effective.

SEC. 15. Section 10826 of the Water Code is amended to read:

10826. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following:

(a) Describe the agricultural water supplier and the service area, including all of the following:

(1) Size of the service area.

(2) Location of the service area and its water management facilities.

(3) Terrain and soils.

(4) Climate.

(5) Operating rules and regulations.

(6) Water delivery measurements or calculations.

(7) Water rate schedules and billing.

(8) Water shortage allocation policies.

(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:

(1) Surface water supply.

(2) Groundwater supply.

(3) Other water supplies, including recycled water.

(4) Source water quality monitoring practices.

(5) Water uses within the agricultural water supplier's service area, including all of the following:

(A) Agricultural.

(B) Environmental.

(C) Recreational.

(D) Municipal and industrial.

(E) Groundwater recharge, including estimated flows from deep percolation from irrigation and seepage.

(c) Include an annual water budget based on the quantification of all inflow and outflow components for the service area of the agricultural water supplier. Components of inflow shall include surface inflow, groundwater pumping in the service area, and effective precipitation. Components of outflow shall include surface outflow, deep percolation, and evapotranspiration. An agricultural water supplier shall report the annual water budget on a water-year basis. The department shall provide tools and resources to assist agricultural water suppliers in developing and quantifying components necessary to develop a water budget.

(d) Include an analysis, based on available information, of the effect of climate change on future water supplies.

(e) Describe previous water management activities.

(f) Identify water management objectives based on the water budget to improve water system efficiency or to meet other water management objectives. The agricultural water supplier shall identify, prioritize, and implement actions to reduce water loss, improve water system management, and meet other water management objectives identified in the plan.

(g) Include in the plan information regarding efficient water management practices required pursuant to Section 10608.48.

(h) Quantify the efficiency of agricultural water use within the service area of the agricultural water supplier using the appropriate method or methods from among the four water use efficiency quantification methods developed by the department in the May 8, 2012, report to the Legislature entitled "A Proposed Methodology for

Quantifying the Efficiency of Agricultural Water Use." The agricultural water supplier shall account for all water uses, including crop water use, agronomic water use, environmental water use, and recoverable surface flows.

SEC. 16. *Section 10826.2 is added to the Water Code, to read:*

10826.2. *As part of its agricultural water management plan, each agricultural water supplier shall develop a drought plan for periods of limited water supply describing the actions of the agricultural water supplier for drought preparedness and management of water supplies and allocations during drought conditions. The drought plan shall contain both of the following:*

(a) Resilience planning, including all of the following:

(1) Data, indicators, and information needed to determine the water supply availability and levels of drought severity.

(2) Analyses and identification of potential vulnerability to drought.

(3) A description of the opportunities and constraints for improving drought resilience planning, including all of the following:

(A) The availability of new technology or information.

(B) The ability of the agricultural water supplier to obtain or use additional water supplies during drought conditions.

(C) A description of other actions planned for implementation to improve drought resilience.

(b) Drought response planning, including all of the following:

(1) Policies and a process for declaring a water shortage and for implementing water shortage allocations and related response actions.

(2) Methods and procedures for the enforcement or appeal of, or exemption from, triggered shortage response actions.

(3) Methods and procedures for monitoring and evaluation of the effectiveness of the drought plan.

(4) Communication protocols and procedures to inform and coordinate customers, the public, interested parties, and local, regional, and state government.

(5) A description of the potential impacts on the revenues, financial condition, and planned expenditures of the agricultural water supplier during drought conditions that reduce water allocations, and proposed measures to overcome those impacts, including reserve-level policies.

SEC. 17. Section 10843 of the Water Code is amended to read:

10843. (a) An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after review of the plan pursuant to subdivision (b) of Section 10820.

(b) An agricultural water supplier shall submit a copy of its plan to each of the following entities:

(1) The department.

(2) Any city, county, or city and county within which the agricultural water supplier provides water supplies.

(3) Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

(4) The California State Library.

SEC. 18. Section 10845 of the Water Code is amended to read:

10845. (a) The department shall prepare and submit to the Legislature, on or before April 30, 2022, and thereafter in the years ending in seven and years ending in two, a report summarizing the status of the plans adopted pursuant to this part.

(b) The report prepared by the department shall identify the outstanding elements of any plan adopted pursuant to this part. The report shall include an evaluation of the effectiveness of this part in promoting efficient agricultural water management practices and recommendations relating to proposed changes to this part, as appropriate.

(c) The department shall provide a copy of the report to each agricultural water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearing designed to consider the effectiveness of plans submitted pursuant to this part.

(d) This section does not authorize the department, in preparing the report, to approve, disapprove, or critique individual plans submitted pursuant to this part.

SEC. 19. Section 10910 of the Water Code is amended to read:

10910. (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system whose service area includes the project site and any water system adjacent to the project site that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system’s total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system’s existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

(d) (1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contractholders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) (A) A description of any groundwater basin or basins from which the proposed project will be supplied.

(B) For those basins for which 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 public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree.

(C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following:

(i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924.

(ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

(D) For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system

determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by subparagraph (D) of paragraph (4) of subdivision (b) of Section 10631.

(g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

(2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.

(3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

(h) Notwithstanding any other provision of this part, if a project has been the subject of a water supply assessment that complies with the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project for which a water supply assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.

(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.

(3) Significant new information becomes available that was not known and could not have been known at the time when the assessment was prepared.

(i) For the purposes of this section, hauled water is not considered as a source of water.

SEC. 20. *This act shall become operative only if Senate Bill 606 of the 2017–18 Regular Session is enacted and becomes effective.*

SB-606 Water management planning. (2017-2018)

As Amends the Law Today **As Amends the Law on Nov 08, 2018**

SECTION 1. Section 350 of the Water Code is amended to read:

350. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

SEC. 2. Section 377 of the Water Code is amended to read:

377. (a) From and after the publication or posting of any ordinance or resolution pursuant to Section 376, a violation of a requirement of a water conservation program adopted pursuant to Section 376 is a misdemeanor. A person convicted under this subdivision shall be punished by imprisonment in the county jail for not more than 30 days, or by a fine not exceeding one thousand dollars ($1,000), or by both.

(b) A court or public entity may hold a person civilly liable in an amount not to exceed ten thousand dollars ($10,000) for a violation of any of the following:

(1) An ordinance or resolution adopted pursuant to Section 376.

(2) A regulation adopted by the board under Section 1058.5 or Chapter 9 (commencing with Section 10609) of Part 2.55 of Division 6, unless the board regulation provides that it cannot be enforced under this section or provides for a lesser applicable maximum penalty.

(c) Commencing on the 31st day after the public entity notified a person of a violation described in subdivision (b), the person additionally may be civilly liable in an amount not to exceed ten thousand dollars ($10,000) plus five hundred dollars ($500) for each additional day on which the violation continues.

(d) Remedies prescribed in this section are cumulative and not alternative, except that no liability shall be recoverable under this section for any violation of paragraph (2) of subdivision (b) if the board has filed a complaint pursuant to Section 1846 alleging the same violation.

(e) A public entity may administratively impose the civil liability described in subdivisions (b) and (c) after providing notice and an opportunity for a hearing. The public entity shall initiate a proceeding under this subdivision by a complaint issued pursuant to Section 377.5. The public entity shall issue the complaint at least 30 days before the hearing on the complaint and the complaint shall state the basis for the proposed civil liability order.

(f) (1) In determining the amount of civil liability to assess, a court or public entity shall take into consideration all relevant circumstances, including, but not limited to, the nature and persistence of the violation, the extent of the harm caused by the violation, the length of time over which the violation occurs, and any corrective action taken by the violator.

(2) The civil liability calculated pursuant to paragraph (1) for the first violation of subdivision (b) by a residential water user shall not exceed one thousand dollars ($1,000) except in extraordinary situations where the court or public entity finds all of the following:

(A) The residential user had actual notice of the requirement found to be violated.

(B) The conduct was intentional.

(C) The amount of water involved was substantial.

(g) Civil liability imposed pursuant to this section shall be paid to the public entity and expended solely for the purposes of this chapter.

(h) An order setting administrative civil liability shall become effective and final upon issuance of the order and payment shall be made. Judicial review of any final order shall be pursuant to Section 1094.5 of the Code of Civil Procedure.

(i) In addition to the remedies prescribed in this section, a public entity may enforce water use limitations established by an ordinance or resolution adopted pursuant to this chapter, or as otherwise authorized by law, by a volumetric penalty in an amount established by the public entity.

SEC. 3. Section 1058.5 of the Water Code is amended to read:

1058.5. (a) This section applies to any emergency regulation adopted by the board for which the board makes both of the following findings:

(1) The emergency regulation is adopted to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter's priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports.

(2) The emergency regulation is adopted in response to conditions which exist, or are threatened, in a critically dry year immediately preceded by two or more consecutive below normal, dry, or critically dry years or during a period for which the Governor has issued a proclamation of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions.

(b) Notwithstanding Sections 11346.1 and 11349.6 of the Government Code, any findings of emergency adopted by the board, in connection with the adoption of an emergency regulation under this section, are not subject to review by the Office of Administrative Law.

(c) An emergency regulation adopted by the board under this section may remain in effect for up to one year, as determined by the board, and is deemed repealed immediately upon a finding by the board that due to changed conditions it is no longer necessary for the regulation to remain in effect. An emergency regulation adopted by the board under this section may be renewed if the board determines that the conditions specified in paragraph (2) of subdivision (a) are still in effect.

(d) In addition to any other applicable civil or criminal penalties, any person or entity ~~that~~ *who* violates a regulation adopted by the board pursuant to this section is guilty of an infraction punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs.

(e) (1) Notwithstanding subdivision (b) of Section 1551 or subdivision (e) of Section 1848, a civil liability imposed under Chapter 12 (commencing with Section 1825) of Part 2 of Division 2 by the board or a court for a violation of an emergency conservation regulation adopted pursuant to this section shall be deposited, and separately accounted for, in the Water Rights Fund. Funds deposited in accordance with this subdivision shall be available, upon appropriation, for water conservation activities and programs.

(2) For purposes of this subdivision, an "emergency conservation regulation" means an emergency regulation that requires an end user of water, a water retailer, or a water wholesaler to conserve water or report to the board on water conservation. Water conservation includes restrictions or limitations on particular uses of water or a reduction in the amount of water used or served, but does not include curtailment of diversions when water is not available under the diverter's priority of right or reporting requirements related to curtailments.

SEC. 4. Section 1120 of the Water Code is amended to read:

1120. This chapter applies to any decision or order issued under this part or Section 275, Part 2 (commencing with Section 1200), Part 2 (commencing with Section 10500) of Division 6, Part 2.55 (commencing with Section 10608) of Division 6, or Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6, Article 7 (commencing with Section 13550) of Chapter 7 of Division 7, or the public trust doctrine.

SEC. 5. Section 10608.12 of the Water Code is amended to read:

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "CII water use" means water used by commercial water users, industrial water users, institutional water users, and large landscape water users.

(e) "Commercial water user" means a water user that provides or distributes a product or service.

(f) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(g) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(h) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(i) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(j) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(k) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(l) "Large landscape" means a nonresidential landscape as described in the performance measures for CII water use adopted pursuant to Section 10609.10.

(m) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(n) "Performance measures" means actions to be taken by urban retail water suppliers that will result in increased water use efficiency by CII water users. Performance measures may include, but are not limited to, educating CII water users on best management practices, conducting water use audits, and preparing water management plans. Performance measures do not include process water.

(o) "Potable reuse" means direct potable reuse, indirect potable reuse for groundwater recharge, and reservoir water augmentation as those terms are defined in Section 13561.

(p) "Process water" means water used by industrial water users for producing a product or product content or water used for research and development. Process water includes, but is not limited to, continuous manufacturing processes, and water used for testing, cleaning, and maintaining equipment. Water used to cool machinery or buildings used in the manufacturing process or necessary to maintain product quality or chemical characteristics for product manufacturing or control rooms, data centers, laboratories, clean rooms, and other industrial facility units that are integral to the manufacturing or research and development process is process water. Water used in the manufacturing process that is necessary for complying with local, state, and federal health and safety laws, and is not incidental water, is process water. Process water does not mean incidental water uses.

(q) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050.

(r) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(s) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(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.

(u) "Urban water use objective" means an estimate of aggregate efficient water use for the previous year based on adopted water use efficiency standards and local service area characteristics for that year, as described in Section 10609.20.

(v) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(w) "Urban wholesale water ~~supplier"~~ *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.

SEC. 6. Section 10608.20 of the Water Code is amended to read:

10608.20. (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in paragraph (1) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's ~~2017~~ *2016* report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its ~~internet website,~~ *Internet Web site,* and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

(2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

SEC. 7. *Section 10608.35 is added to the Water Code, to read:*

10608.35. *(a) The department, in coordination with the board, shall conduct necessary studies and investigations and make a recommendation to the Legislature, by January 1, 2020, on the feasibility of developing and enacting water loss reporting requirements for urban wholesale water suppliers.*

(b) The studies and investigations shall include an evaluation of the suitability of applying the processes and requirements of Section 10608.34 to urban wholesale water suppliers.

(c) In conducting necessary studies and investigations and developing its recommendation, the department shall solicit broad public participation from stakeholders and other interested persons.

SEC. 8. *Section 10609.20 is added to the Water Code, immediately following Section 10609.18, to read:*

10609.20. *(a) Each urban retail water supplier shall calculate its urban water use objective no later than November 1, 2023, and by November 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.

(c) Each urban water supplier's urban water use objective shall be composed of the sum of the following:

(1) Aggregate estimated efficient indoor residential water use.

(2) Aggregate estimated efficient outdoor residential water use.

(3) Aggregate estimated efficient outdoor irrigation of landscape areas with dedicated irrigation meters or equivalent technology in connection with CII water use.

(4) Aggregate estimated efficient water losses.

(5) Aggregate estimated water use in accordance with variances, as appropriate.

(d) (1) An urban retail water supplier that delivers water from a groundwater basin, reservoir, or other source that is augmented by potable reuse water may adjust its urban water use objective by a bonus incentive calculated pursuant to this subdivision.

(2) The water use objective bonus incentive shall be the volume of its potable reuse delivered to residential water users and to landscape areas with dedicated irrigation meters in connection with CII water use, on an acre-foot basis.

(3) The bonus incentive pursuant to paragraph (1) shall be limited in accordance with one of the following:

(A) The bonus incentive shall not exceed 15 percent of the urban water supplier's water use objective for any potable reuse water produced at an existing facility.

(B) The bonus incentive shall not exceed 10 percent of the urban water supplier's water use objective for any potable reuse water produced at any facility that is not an existing facility.

(4) For purposes of this subdivision, "existing facility" means a facility that meets all of the following:

(A) The facility has a certified environmental impact report, mitigated negative declaration, or negative declaration on or before January 1, 2019.

(B) The facility begins producing and delivering potable reuse water on or before January 1, 2022.

(C) The facility uses microfiltration and reverse osmosis technologies to produce the potable reuse water.

(e) (1) The calculation of the urban water use objective shall be made using landscape area and other data provided by the department and pursuant to the standards, guidelines, and methodologies adopted by the board. The department shall provide data to the urban water supplier at a level of detail sufficient to allow the urban water supplier to verify its accuracy at the parcel level.

(2) Notwithstanding paragraph (1), an urban retail water supplier may use alternative data in calculating the urban water use objective if the supplier demonstrates to the department that the alternative data are equivalent, or superior, in quality and accuracy to the data provided by the department. The department may provide technical assistance to an urban retail water supplier in evaluating whether the alternative data are appropriate for use in calculating the supplier's urban water use objective.

SEC. 9. *Section 10609.22 is added to the Water Code, to read:*

10609.22. *(a) An urban retail water supplier shall calculate its actual urban water use no later than November 1, 2023, and by November 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.

(c) Each urban water supplier's urban water use shall be composed of the sum of the following:

(1) Aggregate residential water use.

(2) Aggregate outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use.

(3) Aggregate water losses.

SEC. 10. *Section 10609.24 is added to the Water Code, to read:*

10609.24. *(a) An urban retail water supplier shall submit a report to the department no later than November 1, 2023, and by November 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.

(b) The department shall post the reports and information on its Internet Web site.

(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.

SEC. 11. *Section 10609.26 is added to the Water Code, to read:*

10609.26. *(a) (1) On and after November 1, 2023, the board may issue informational orders pertaining to water production, water use, and water conservation to an urban retail water supplier that does not meet its urban water use objective required by this chapter. Informational orders are intended to obtain information on supplier activities, water production, and conservation efforts in order to identify technical assistance needs and assist urban water suppliers in meeting their urban water use objectives.*

(2) In determining whether to issue an informational order, the board shall consider the degree to which the urban retail water supplier is not meeting its urban water use objective, information provided in the report required by Section 10609.24, and actions the urban retail water supplier has implemented or will implement in order to help meet the urban water use objective.

(3) The board shall share information received pursuant to this subdivision with the department.

(4) An urban water supplier may request technical assistance from the department. The technical assistance may, to the extent available, include guidance documents, tools, and data.

(b) On and after November 1, 2024, the board may issue a written notice to an urban retail water supplier that does not meet its urban water use objective required by this chapter. The written notice may warn the urban retail water supplier that it is not meeting its urban water use objective described in Section 10609.20 and is not making adequate progress in meeting the urban water use objective, and may request that the urban retail water supplier address areas of concern in its next annual report required by Section 10609.24. In deciding whether to issue a written notice, the board may consider whether the urban retail water supplier has received an informational order, the degree to which the urban retail water supplier is not meeting its urban water use objective, information provided in the report required by Section 10609.24, and actions the urban retail water supplier has implemented or will implement in order to help meet its urban water use objective.

(c) (1) On and after November 1, 2025, the board may issue a conservation order to an urban retail water supplier that does not meet its urban water use objective. A conservation order may consist of, but is not limited to, referral to the department for technical assistance, requirements for education and outreach, requirements for local enforcement, and other efforts to assist urban retail water suppliers in meeting their urban water use objective.

(2) In issuing a conservation order, the board shall identify specific deficiencies in an urban retail water supplier's progress towards meeting its urban water use objective, and identify specific actions to address the deficiencies.

(3) The board may request that the department provide an urban retail water supplier with technical assistance to support the urban retail water supplier's actions to remedy the deficiencies.

(d) A conservation order issued in accordance with this chapter may include requiring actions intended to increase water-use efficiency, but shall not curtail or otherwise limit the exercise of a water right, nor shall it require the imposition of civil liability pursuant to Section 377.

SEC. 12. *Section 10609.28 is added to the Water Code, to read:*

10609.28. *The board may issue a regulation or informational order requiring a wholesale water supplier, an urban retail water supplier, or a distributor of a public water supply, as that term is used in Section 350, to provide a monthly report relating to water production, water use, or water conservation.*

SEC. 13. *Section 10609.30 is added to the Water Code, to read:*

10609.30. *On or before January 10, 2024, the Legislative Analyst shall provide to the appropriate policy committees of both houses of the Legislature and the public a report evaluating the implementation of the water use efficiency standards and water use reporting pursuant to this chapter. The board and the department shall provide the Legislative Analyst with the available data to complete this report.*

(a) The report shall describe all of the following:

(1) The rate at which urban retail water users are complying with the standards, and factors that might facilitate or impede their compliance.

(2) The accuracy of the data and estimates being used to calculate urban water use objectives.

(3) Indications of the economic impacts, if any, of the implementation of this chapter on urban water suppliers and urban water users, including CII water users.

(4) The frequency of use of the bonus incentive, the volume of water associated with the bonus incentive, value to urban water suppliers of the bonus incentive, and any implications of the use of the bonus incentive on water use efficiency.

(5) The early indications of how implementing this chapter might impact the efficiency of statewide urban water use.

(6) Recommendations, if any, for improving statewide urban water use efficiency and the standards and practices described in this chapter.

(7) Any other issues the Legislative Analyst deems appropriate.

SEC. 14. *Section 10609.32 is added to the Water Code, to read:*

10609.32. *It is the intent of the Legislature that the chairperson of the board and the director of the department appear before the appropriate policy committees of both houses of the Legislature on or around January 1, 2026, and report on the implementation of the water use efficiency standards and water use reporting pursuant to this chapter. It is the intent of the Legislature that the topics to be covered include all of the following:*

(a) The rate at which urban retail water suppliers are complying with the standards, and factors that might facilitate or impede their compliance.

(b) What enforcement actions have been taken, if any.

(c) The accuracy of the data and estimates being used to calculate urban water use objectives.

(d) Indications of the economic impacts, if any, of the implementation of this chapter on urban water suppliers and urban water users, including CII water users.

(e) The frequency of use of the bonus incentive, the volume of water associated with the bonus incentive, value to urban water suppliers of the bonus incentive, and any implications of the use of the bonus incentive on water use efficiency.

(f) An assessment of how implementing this chapter is affecting the efficiency of statewide urban water use.

SEC. 15. *Section 10609.34 is added to the Water Code, to read:*

10609.34. *Notwithstanding Section 15300.2 of Title 14 of the California Code of Regulations, an action of the board taken under this chapter shall be deemed to be a Class 8 action, within the meaning of Section 15308 of Title 14 of the California Code of Regulations, provided that the action does not involve relaxation of existing water conservation or water use standards.*

SEC. 16. *Section 10609.36 is added to the Water Code, to read:*

10609.36. *(a) Nothing in this chapter shall be construed to determine or alter water rights. Sections 1010 and 1011 apply to water conserved through implementation of this chapter.*

(b) Nothing in this chapter shall be construed to authorize the board to update or revise water use efficiency standards authorized by this chapter except as explicitly provided in this chapter. Authorization to update the standards beyond that explicitly provided in this chapter shall require separate legislation.

(c) Nothing in this chapter shall be construed to limit or otherwise affect the use of recycled water as seawater barriers for groundwater salinity management.

SEC. 17. *Section 10609.38 is added to the Water Code, to read:*

10609.38. The board may waive the requirements of this chapter for a period of up to five years for any urban retail water supplier whose water deliveries are significantly affected by changes in water use as a result of damage from a disaster such as an earthquake or fire. In establishing the period of a waiver, the board shall take into consideration the breadth of the damage and the time necessary for the damaged areas to recover from the disaster.

SEC. 18. Section 10610.2 of the Water Code is amended to read:

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate, and increasing long-term water conservation among Californians, improving water use efficiency within the state's communities and agricultural production, and strengthening local and regional drought planning are critical to California's resilience to drought and climate change.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years now and into the foreseeable future, and every urban water supplier should collaborate closely with local land-use authorities to ensure water demand forecasts are consistent with current land-use planning.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

SEC. 19. Section 10610.4 of the Water Code is amended to read:

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to achieve the efficient use of available supplies and strengthen local drought planning.

SEC. 20. Section 10612 of the Water Code is amended and renumbered to read:

~~**10612.**~~ *10611.3.* ~~"Drought risk assessment"~~ *"Customer"* means a ~~method that examines water shortage risks based on the driest five-year historic sequence for the agency's water supply, as described in subdivision (b) of Section 10635.~~ *purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.*

SEC. 21. *Section 10612 is added to the Water Code, to read:*

10612. *"Drought risk assessment" means a method that examines water shortage risks based on the driest five-year historic sequence for the agency's water supply, as described in subdivision (b) of Section 10635.*

SEC. 22. *Section 10617.5 is added to the Water Code, to read:*

10617.5. *"Water shortage contingency plan" means a document that incorporates the provisions detailed in subdivision (a) of Section 10632 and is subsequently adopted by an urban water supplier pursuant to this article.*

SEC. 23. *Section 10618 is added to the Water Code, to read:*

10618. *"Water supply and demand assessment" means a method that looks at current year and one or more dry year supplies and demands for determining water shortage risks, as described in Section 10632.1.*

SEC. 24. Section 10620 of the Water Code is amended to read:

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(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.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation, efficient water use, and improved local drought resilience.

(2) Notwithstanding paragraph (1), each urban water supplier shall develop its own water shortage contingency plan, but an urban water supplier may incorporate, collaborate, and otherwise share information with other urban water suppliers or other governing entities participating in an areawide, regional, watershed, or basinwide urban water management plan, an agricultural management plan, or groundwater sustainability plan development.

(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.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(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.

SEC. 25. Section 10621 of the Water Code is amended to read:

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.

(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.

(c) An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(e) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

(f) *(1)* Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

(2) By January 1, 2024, each urban retail water supplier shall adopt and submit to the department a supplement to the adopted 2020 plan that includes information required pursuant to subparagraph (B) of paragraph (1) of subdivision (e) of Section 10631. This supplement is not an update or an amendment to the plan and, therefore, an urban water supplier is not required to comply with the public notice, hearing, and adoption requirements of Section 10642 before submitting the information to the department.

SEC. 26. Section 10630 of the Water Code is amended to read:

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

SEC. 27. *Section 10630.5 is added to the Water Code, to read:*

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.*

SEC. 28. Section 10631 of the Water Code is amended to read:

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and 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. 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, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

(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:

(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.

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

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

(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.

(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.

(c) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(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).

(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.

(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.

(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) For the supplement required of urban retail water suppliers by paragraph (2) of subdivision (f) of Section 10621, a narrative that describes the water demand management measures that the supplier plans to implement to achieve its urban water use objective by January 1, 2027, pursuant to Chapter 9 (commencing with Section 10609) of Part 2.55.

~~(B)~~ *(C)* 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.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph ~~(B)~~ *(C)* of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

(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.

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

(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).

SEC. 29. Section 10631.2 of the Water Code is amended to read:

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.

SEC. 30. Section 10631.7 of the Water Code is repealed.

SEC. 31. Section 10632 of the Water Code is repealed.

~~**10632.** (a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements:~~

~~(1) The analysis of water supply reliability conducted pursuant to Section 10635.~~

~~(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:~~

~~(A) The written decisionmaking process that an urban water supplier will use each year to determine its water supply reliability.~~

~~(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:~~

~~(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.~~

~~(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.~~

~~(iii) Existing infrastructure capabilities and plausible constraints.~~

~~(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.~~

~~(v) A description and quantification of each source of water supply.~~

~~(3) (A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.~~

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

(5) Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

(6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

(7) (A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

(10) Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes,

~~waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.~~

~~(c) The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.~~

SEC. 32. *Section 10632 is added to the Water Code, to read:*

10632. *(a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements:*

(1) The analysis of water supply reliability conducted pursuant to Section 10635.

(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decisionmaking process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

(3) (A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

(5) Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

(6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

(7) (A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

(10) Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

(c) The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

SEC. 33. *Section 10632.1 is added to the Water Code, to read:*

10632.1. *An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before June 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by June 1 of each year, whichever is later.*

SEC. 34. *Section 10632.2 is added to the Water Code, to read:*

10632.2. *An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative*

actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

SEC. 35. *Section 10632.3 is added to the Water Code, to read:*

10632.3. *It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.*

SEC. 36. Section 10635 of the Water Code is amended to read:

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.

(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.

(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.

(d) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(e) Nothing in this article is intended to change existing law concerning an urban water supplier’s obligation to provide water service to its existing customers or to any potential future customers.

SEC. 37. Section 10640 of the Water Code is amended to read:

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.

SEC. 38. Section 10641 of the Water Code is amended to read:

10641. An urban water supplier required to prepare a plan or a water shortage contingency plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

SEC. 39. Section 10642 of the Water Code is amended to read:

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.

SEC. 40. Section 10644 of the Water Code is amended to read:

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.

(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.

(c) (1) (A) Notwithstanding Section 10231.5 of the Government Code, the department shall prepare and submit to the Legislature, on or before July 1, in the years ending in seven and two, a report summarizing the status of the plans and water shortage contingency plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans and water shortage contingency plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan and water shortage contingency plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans and water shortage contingency plans submitted pursuant to this part.

(B) The department shall prepare and submit to the board, on or before September 30 of each year, a report summarizing the submitted water supply and demand assessment results along with appropriate reported water shortage conditions and the regional and statewide analysis of water supply conditions developed by the department. As part of the report, the department shall provide a summary and, as appropriate, urban water supplier specific information regarding various shortage response actions implemented as a result of annual supplier-specific water supply and demand assessments performed pursuant to Section 10632.1.

(C) The department shall submit the report to the Legislature for the 2015 plans by July 1, 2017, and the report to the Legislature for the 2020 plans and water shortage contingency plans by July 1, 2022.

(2) A report to be submitted pursuant to subparagraph (A) of paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.

(d) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

SEC. 41. Section 10645 of the Water Code is amended to read:

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.

SEC. 42. Section 10650 of the Water Code is amended to read:

10650. Any actions or proceedings, other than actions by the board, to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan or a water shortage contingency plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan or water shortage contingency plan, or action taken pursuant to either, does not comply with this part shall be commenced within 90 days after filing of the plan or water shortage contingency plan or an amendment to either pursuant to Section 10644 or the taking of that action.

SEC. 43. Section 10651 of the Water Code is amended to read:

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan or a water shortage contingency plan, or an action taken pursuant to either by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

SEC. 44. Section 10653 of the Water Code is amended to read:

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the board and the Public Utilities Commission, for the preparation of water management plans, water shortage contingency plans, or conservation plans; provided, that if the board or the Public Utilities Commission requires additional information concerning water conservation, drought response measures, or financial conditions to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan that complies with analogous federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

SEC. 45. Section 10654 of the Water Code is amended to read:

10654. An urban water supplier may recover in its rates the costs incurred in preparing its urban water management plan, its drought risk assessment, its water supply and demand assessment, and its water shortage contingency plan and implementing the reasonable water conservation measures included in either of the plans.

SEC. 46. Section 10656 of the Water Code is amended to read:

10656. An urban water supplier is not eligible for a water grant or loan awarded or administered by the state unless the urban water supplier complies with this part.

SEC. 47. *Section 10657 is added to the Water Code, to read:*

10657. *The department may adopt regulations regarding the definitions of water, water use, and reporting periods, and may adopt any other regulations deemed necessary or desirable to implement this part. In developing regulations pursuant to this section, the department shall solicit broad public participation from stakeholders and other interested persons.*

SEC. 48. *This act shall become operative only if Assembly Bill 1668 of the 2017–18 Regular Session is enacted and becomes effective.*

Appendix B

Development and Construction Report – City of Sonoma

Development and Construction Report

Project	Location	S.F. Res. Units	M.F. Res. Units	Live-Work Units	Accessory Dwelling Units	Cong. Care Units	Hotel Units	Restaurant Seats	Comm. Sq. Ft.
Growth Management Allocations Received									
Merlo	20549-20563 Broadway	60							
Zepponi	20540 Broadway	50							
Merlo	20535 Broadway	14							
Subtotal		**124**	**0**	**0**	**0**	**0**	**0**	**0**	
Applications Filed (Planning Department)									
Doyle	20455 Fifth Street East	58							
Sonoma Hotel	117, 135 & 153 West Napa St. & 541 First St. West						62	80	
Subtotal		**58**	**0**	**0**	**0**	**0**	**62**	**80**	**0**

SEE OTHER SIDE

Development and Construction Report

Project	Location	S.F. Res. Units	M.F. Res. Units	Live-Work Units	Accessory Dwelling Units	Cong. Care Units	Hotel Units	Restaurant Seats	Comm. Sq. Ft.
Approved Applications (Planning/City Council Approved)									
Bijan Planned Unit Development	1211 Broadway	6							
Subtotal		**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Under Construction (Building Permit Issued)									
Sausage Emporium	31 East Napa Street							20	
Altamira Family Apartments	20269 Broadway		48						
Mockingbird Lane Vesting Subdividion Map	853 Fourth Street West	20			12				
Oliva Apartments	655 West Spain Street		30						
Subtotal		**20**	**78**	**0**	**12**	**0**	**0**	**20**	**0**
Total		**208**	**78**	**0**	**12**	**0**	**62**	**100**	**0**

SEE OTHER SIDE

Appendix C

AWE Model Assumptions

AWE CONSERVATION TRACKING TOOL: COMMON ASSUMPTIONS WORKSHEET

Getting Started: On this worksheet you enter information the tracking tool needs to operate. This includes specifying whether to use English or Metric units, setting up customer classes, specifying the first year for forecasts, entering forecasted population, housing, and customer accounts, setting financial assumptions, providing information needed to calculate water and energy savings due to appliance and plumbing standards for toilets, clothes washers, and dishwashers, and providing information needed to calculate water savings for landscape conservation measures included in the conservation measure

Scenario "'Empty" loaded into model on 7/27/2016 5:44:04 PM

State	CA
Volume Units	Acre-Feet (AF)

Model will use CA plumbing standards	
Flow Units Will Be:	MGD

Population, Housing, and Account Forecasts

DU and 2020 Sector # were scaled based on ABAG 2018 population estimates, 2025-2045 Sector# were scaled based on pop and employment growth.

Enter Starting Year for Forecasts: 2010

Population & Housing	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Population	10,842	11,587	10,880	11,235	11,570	11,675	11,905	12,140
Single Family Dwelling Units	3,849	4,113	3,862	3,988	4,107	4,144	4,226	4,309
Multi Family Dwelling Units	990	1,058	993	1,026	1,056	1,066	1,087	1,108
Number of Accounts								
Single Family	3,488	3,493	3,280	3,689	3,799	3,833	3,909	3,986
Multi Family	269	277	260	302	320	323	329	335
CII	335	300	282	302	314	321	322	322
Irrigation	75	89	84	78	81	83	83	83
Other	191	209	196	211	217	219	224	228
Not in use								
Not in use								
Not in use								
Not in use								

CII = Commercial/Institutional
Irrigation = Landscape Irrigation

Financial Assumptions

These inputs are used by the tracking tool to standardize costs and benefits, calculate present values, and estimate utility and customer benefits of conservation.

Dollar Base Year	2020
Annual Inflation Rate	3.0%
Nominal Interest Rate	2.3%

Utility Rates in 2010	**Average Class Rate (2020 Dollars)**				**Annual Rate of Increase**			
	Water	Sewer	Electricity	Gas	Water	Sewer	Electricity	Gas

Customer Class	($/Thou Gal)	($/Thou Gal)	($/KWh)	($/Therm)	(%/Yr)	(%/Yr)	(%/Yr)	(%/Yr)
Single Family	$6.72		$0.28	$1.80	7.5%		3.0%	3.0%
Multi Family	$6.56		$0.28	$1.80	7.5%		3.0%	3.0%
CII	$6.37		$0.24	$0.78	7.5%		3.0%	3.0%
Irrigation	$6.98		$0.32	$0.80	7.5%		3.0%	3.0%
Other	$8.64				7.5%			
Not in use								
Not in use								
Not in use								
Not in use								

Information Needed to Calculate Water/Energy Savings from Plumbing/Appliance Standards

These inputs are used by the tracking tool to estimate water and energy savings for national toilet and showerhead standards, which first took effect in 1994, and clothes washer and dishwasher appliance standards, which first included maximum allowable water factors in 2011 and 2010, respectively. Toilet standards took effect in 1992 in California and Texas.

	Single Family	Multi Family
Persons per household	2.17	2.17
Full Baths/Dwelling Unit	2.06	1.89
Half Baths/Dwelling Unit	0.28	0.45
Dwellling Units in 1992	2,945	1,119

Population in 1990 8,617

Information Needed to Calculate Water Savings for Landscape Measures in Library

Average landscape water use for residential and non-residential sites is used by the model to calculate water savings for various landscape conservation measures included in the program library. Average landscape water use is calculated using the following equation. Alternatively, you can use your own landscape water use estimate by selecting the "Use My Own Estimate" option.

$$use\ per\ site = \left(\frac{1}{irr.eff.}\right) \times (ET_0 \times K_L - R_e)\ \times Area \times C_v, where$$

$irr.eff. = typical\ irrigation\ efficiency$
$ET_0 = reference\ evapotranspiration$
$K_L = landscape\ coefficient\ (\%\ of ET_0\ needed\ by\ crop)$
$R_e = effective\ rainfall\ (\%\ of\ annual\ rainfall\ contributing\ to\ plant\ water\ requirement)$
$C_v = coefficient\ that\ converts\ water\ use\ to\ appropriate\ volume\ units\ (gal\ for\ english\ units, M^3 for\ metric\ units)$

○ Use my own landscape water use estimates ◉ Use model's landscape water use calculator

Reference ET in/yr 43.00

Avg Annual Rainfall	in/yr	29.40
Effective Rainfall	%	25%

Landscape Water Requirement Coefficient (K_L)

Turf	% of ET_0	80%
Other than turf	% of ET_0	40%

		Residential	Non Residential
Avg Landscape Area Per Site	ft^2		
Avg Turf Area (% of Total)	%		
Avg Irrigation Efficiency (%)	%	75%	75%

Irrigation Requirement		Residential	Non Residential
Turf Area	in/ft^2/yr	36	36
Other	in/ft^2/yr	13	13

Avg Landscape Water Use Per Site		Residential	Non Residential
Turf Area	Gal/Yr	0	0
Other	Gal/Yr	0	0
Total	Gal/Yr	**0**	**0**

AWE CONSERVATION TRACKING TOOL: ENTER UTILITY AVOIDED COSTS WORKSHEET

Enter utility avoided costs: The primary benefit of conservation to the utility and its ratepayers is avoiding future water supply and wastewater costs. A utility avoids cost by not having to purchase (or otherwise acquire), transport, treat and distribute water supply, and by not having to collect, treat, and dispose of wastewater. The variable costs of these activities are major components of avoided cost. Conservation, if done at sufficient scale, may also allow the utility to defer or even entirely avoid future expansion of system capacity. This can be a major source of benefit in some cases.

The tracking tool comes with a calculator you can use to estimate your avoided costs. Alternatively, you can enter you own avoided cost estimates by

Scenario '"Empty" loaded into model on 7/27/2016 5:44:04 PM

Download CUWCC Avoided Cost & Environmental Benefits Models

○ Use my own avoided cost estimates ◉ Use model's avoided cost calculator

Tracking Tool Utility Avoided Cost Calculator

Water and Wastewater System Variable Costs (2020 Dollars)

	Water		Wastewater	
	$/AF	Nominal Increase	$/AF	Nominal Increase
Water purchase	$1,107	6.0%	NA	NA
Energy	$40	3.0%		
Chemicals	$1	3.0%		
Other variable cost				
Total	**$1,148**	**5.9%**	**$0**	**0.0%**

Variable Cost Forecast

Variable Cost	Units	2010	2015	2020	2025	2030	2035	2040	2045	2040-2045 Ann Grwth %
Water Supply	$/AF	$1,148	$1,322	$1,522	$1,752	$2,017	$2,323	$2,674	$3,078	2.9%
Wastewater	$/AF	$0	$0	$0	$0	$0	$0	$0	$0	0.0%

AWE CONSERVATION TRACKING TOOL: DEFINE CONSERVATION ACTIVITIES WORKSHEET

Define conservation activities: Click the Define/Edit/Delete button to setup and edit conservation activities. You can use the form to define your own activities or import activities from the tracking tool's library. Once imported, library activities can be customized. Conservation activity specifications are stored in a table on this worksheet. This table is hidden by default. You can unhide the table by clicking the "Show Activities Table" button. You can edit activities directly in the table if you find this easier than using the form. HOWEVER, DO NOT DELETE TABLE ROWS. ONLY USE THE FORM TO DELETE CONSERVATION ACTIVITIES.

Scenario '"Empty" loaded into model on 7/27/2016 5:44:04 PM

NOTE: You can define activities in the table rather than using the form. BUT ONLY USE THE FORM TO DELETE ACTIVITIES.

Activity ID	Activity Name	Class	Savings, Per Unit (gpy)	Savings, Annual Rate of Decay (%)	Savings, Peak Period (% of Annual Savings)	Savings, Useful Life (yrs)	Savings, Participant Free Riders (% of Participants)	Utility Costs, Year Denominated	Utility Costs, Initial Fixed ($)	Utility Costs, Initial Variable ($/unit)	Utility Costs, Years of Follow-up (yrs)	Utility Costs, Follow-up Fixed ($/yr)	Utility Costs, Follow-up Variable ($/unit/yr)	Participant Costs, Year Denominated	Participant Costs, Initial ($)	Participant Costs, Years of On-going (yrs)	Participant Costs, On-going ($/Yr)	Participant Savings, Sewer (gpy)	Participant Savings, Gas (Therms/Gal)	Participant Savings, Electricity (KWh/Gal)	Plumbing Code, Year Effective	Plumbing Code, Unit Savings (gpy)	Plumbing Code, Natural Replacement Rate NRR (%)
1	High Efficiency Clothes Washer Rebate - Residentia	Single Family	5,000	0%	0%	15	0%	2020		$65.00				2020	$710.80			5,000.00	0.0035	0.0036	2011	3500	7.14%
2	Landscape Conversion or Turf Removal -SFR	Single Family	14	0%	80%	10	0%	2020		$1.11				2020	$1.15			0.00	0.0000	0.0000	0	0	0.00%
3	Landscape Conversion or Turf Removal - MFR and C	Multi Family	14	0%	80%	10	0%	2020		$1.11				2020	$1.15			0.00	0.0000	0.0000	0	0	0.00%
4	Water Use Surveys/Audits - SFR	Single Family	12,373	20%	68%	5	0%	2020		$195.00				2020	$50.00			4,949.20	0.0010	0.0000	0	0	0.00%
5	Water Use Surveys/Audits - CII	CII	72,921	20%		5	0%	2020		$2,000.00				2020	$2,500.00								
6	Smart Irrigation Controller (Weather-Based Irrigation	Irrigation	96,645	0%	70%	10	0%	2020		$1,300.00				2020	$500.00			0.00	0.0000	0.0000	0	0	0.00%
7	Nonresidential Incentive for Self-closing or Metering	CII	2,191	0%		10	0%	2020		$65.00				2020	$150.00								
8	High Efficiency Faucet Aerator / Showerhead Giveav	Single Family	1,817	0%		5	0%	2020		$31.20				2020	$50.00								
9	Direct Install of Efficient Indoor Fixtures - Residential	Single Family	15,252	0%			0%	2020		$422.50				2020	$100.00								
10	Restaurant Spray Nozzle Rebates	CII	43,830	0%		5	0%	2020		$65.00				2020	$50.00			43,830.00	0.0083				

AWE CONSERVATION TRACKING

Enter annual conservation activity: Use this worksheet to enter the annual activity levels for the conservation activities you defined on the 4. Define Activities worksheet. You can enter activity through the end of your forecast period, but this is not required. It is okay to enter activity for shorter periods. You also can start an activity in

Enter Annual Conservation Activity

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	24	24	24	24	24																				
2	Single Family	Landscape Conversion or Turf Removal -SFR	21771	21771	21771	21771	21771																				
3	Multi Family	Landscape Conversion or Turf Removal - MF	108855	108855	108855	108855	108855																				
4	Single Family	Water Use Surveys/Audits - SFR	24	24	24	24	24																				
5	CII	Water Use Surveys/Audits - CII	5	5	5	5	5																				
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	5	5	5	5	5																				
7	CII	Nonresidential Incentive for Self-closing or M	5	5	5	5	5																				
8	Single Family	High Efficiency Faucet Aerator / Showerhead	72	72	72	72	72																				
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	72	72	72	72	72																				
10	CII	Restaurant Spray Nozzle Rebates	5	5	5	5	5																				

Annual Program Overhead Cost (2020 dollars)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Enter additional program cost not included in activity definitions																									

Model calculation tables below this line. Do not delete or modify.

Effective Conservation Activity

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	24	48	72	96	120	120	120	120	120	120	120	120	120	120	120	96	72	48	24	0	0	0	0	0	0
2	Single Family	Landscape Conversion or Turf Removal -SFR	21,771	43,542	65,313	87,084	108,855	108,855	108,855	108,855	108,855	108,855	87,084	65,313	43,542	21,771	0	0	0	0	0	0	0	0	0	0	0
3	Multi Family	Landscape Conversion or Turf Removal - MF	108,855	217,710	326,565	435,420	544,275	544,275	544,275	544,275	544,275	544,275	435,420	326,565	217,710	108,855	0	0	0	0	0	0	0	0	0	0	0
4	Single Family	Water Use Surveys/Audits - SFR	24	43	59	71	81	57	37	22	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	CII	Water Use Surveys/Audits - CII	5	9	12	15	17	12	8	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	5	10	15	20	25	25	25	25	25	25	20	15	10	5	0	0	0	0	0	0	0	0	0	0	0
7	CII	Nonresidential Incentive for Self-closing or M	5	10	15	20	25	25	25	25	25	25	20	15	10	5	0	0	0	0	0	0	0	0	0	0	0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	72	144	216	288	360	288	216	144	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	72	144	216	288	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
10	CII	Restaurant Spray Nozzle Rebates	5	10	15	20	25	20	15	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Gross Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.4	0.7	1.1	1.5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.1	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	1.0	1.9	2.9	3.8	4.8	4.8	4.8	4.8	4.8	4.8	3.8	2.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	4.8	9.6	14.3	19.1	23.9	23.9	23.9	23.9	23.9	23.9	19.1	14.3	9.6	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.9	1.6	2.2	2.7	3.1	2.2	1.4	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	1.1	2.0	2.7	3.3	3.8	2.6	1.7	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	1.5	3.0	4.4	5.9	7.4	7.4	7.4	7.4	7.4	7.4	5.9	4.4	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.4	0.8	1.2	1.6	2.0	1.6	1.2	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	3.4	6.7	10.1	13.5	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
10	CII	Restaurant Spray Nozzle Rebates	0.7	1.3	2.0	2.7	3.4	2.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Gross Water Savings		**14.1**	**27.8**	**41.1**	**54.2**	**67.1**	**64.0**	**61.3**	**58.9**	**56.8**	**54.9**	**47.7**	**40.4**	**33.2**	**25.9**	**18.7**	**18.3**	**18.0**	**17.6**	**17.2**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**

Peak Gross Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.8	1.5	2.3	3.1	3.8	3.8	3.8	3.8	3.8	3.8	3.1	2.3	1.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	3.8	7.6	11.5	15.3	19.1	19.1	19.1	19.1	19.1	19.1	15.3	11.5	7.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.6	1.1	1.5	1.8	2.1	1.5	1.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	1.0	2.1	3.1	4.2	5.2	5.2	5.2	5.2	5.2	5.2	4.2	3.1	2.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Gross Water Savings		**6.2**	**12.4**	**18.4**	**24.3**	**30.2**	**29.6**	**29.1**	**28.7**	**28.4**	**28.1**	**22.5**	**16.9**	**11.2**	**5.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Off Peak Gross Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.4	0.7	1.1	1.5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.1	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.2	0.4	0.6	0.8	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	1.0	1.9	2.9	3.8	4.8	4.8	4.8	4.8	4.8	4.8	3.8	2.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.3	0.5	0.7	0.9	1.0	0.7	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	1.1	2.0	2.7	3.3	3.8	2.6	1.7	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.4	0.9	1.3	1.8	2.2	2.2	2.2	2.2	2.2	2.2	1.8	1.3	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.4	0.8	1.2	1.6	2.0	1.6	1.2	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	3.4	6.7	10.1	13.5	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
10	CII	Restaurant Spray Nozzle Rebates	0.7	1.3	2.0	2.7	3.4	2.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Gross Water Savings		**7.8**	**15.4**	**22.8**	**29.9**	**36.9**	**34.4**	**32.2**	**30.3**	**28.5**	**26.8**	**25.2**	**23.6**	**21.9**	**20.3**	**18.7**	**18.3**	**18.0**	**17.6**	**17.2**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**

Active Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.4	0.7	1.1	1.4	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1	0.9	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	1.0	1.9	2.9	3.8	4.8	4.8	4.8	4.8	4.8	4.8	3.8	2.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	4.8	9.6	14.3	19.1	23.9	23.9	23.9	23.9	23.9	23.9	19.1	14.3	9.6	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.9	1.6	2.2	2.7	3.1	2.2	1.4	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	1.1	2.0	2.7	3.3	3.8	2.6	1.7	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	1.5	3.0	4.4	5.9	7.4	7.4	7.4	7.4	7.4	7.4	5.9	4.4	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.4	0.8	1.2	1.6	2.0	1.6	1.2	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	3.4	6.7	10.1	13.5	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
10	CII	Restaurant Spray Nozzle Rebates	0.7	1.3	2.0	2.7	3.4	2.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Active Water Savings		**14.1**	**27.8**	**41.1**	**54.1**	**67.0**	**63.8**	**61.0**	**58.6**	**56.4**	**54.4**	**47.1**	**39.8**	**32.5**	**25.2**	**17.9**	**17.7**	**17.5**	**17.3**	**17.1**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**

Peak Active Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.8	1.5	2.3	3.1	3.8	3.8	3.8	3.8	3.8	3.8	3.1	2.3	1.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	3.8	7.6	11.5	15.3	19.1	19.1	19.1	19.1	19.1	19.1	15.3	11.5	7.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.6	1.1	1.5	1.8	2.1	1.5	1.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	1.0	2.1	3.1	4.2	5.2	5.2	5.2	5.2	5.2	5.2	4.2	3.1	2.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Active Water Savings		**6.2**	**12.4**	**18.4**	**24.3**	**30.2**	**29.6**	**29.1**	**28.7**	**28.4**	**28.1**	**22.5**	**16.9**	**11.2**	**5.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Off Peak Active Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.4	0.7	1.1	1.4	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1	0.9	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.2	0.4	0.6	0.8	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	1.0	1.9	2.9	3.8	4.8	4.8	4.8	4.8	4.8	4.8	3.8	2.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.3	0.5	0.7	0.9	1.0	0.7	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	1.1	2.0	2.7	3.3	3.8	2.6	1.7	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.4	0.9	1.3	1.8	2.2	2.2	2.2	2.2	2.2	2.2	1.8	1.3	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.4	0.8	1.2	1.6	2.0	1.6	1.2	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	3.4	6.7	10.1	13.5	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
10	CII	Restaurant Spray Nozzle Rebates	0.7	1.3	2.0	2.7	3.4	2.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Active Water Savings		**7.8**	**15.4**	**22.7**	**29.8**	**36.8**	**34.2**	**31.9**	**29.9**	**28.0**	**26.3**	**24.6**	**22.9**	**21.3**	**19.6**	**17.9**	**17.7**	**17.5**	**17.3**	**17.1**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**	**16.9**

Passive Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.6	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Passive Water Savings		**0.0**	**0.0**	**0.1**	**0.1**	**0.2**	**0.3**	**0.3**	**0.4**	**0.5**	**0.5**	**0.6**	**0.6**	**0.7**	**0.7**	**0.8**	**0.6**	**0.5**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Peak Passive Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2	Single Family	Landscape Conversion or Turf Removal -SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Passive Water Savings		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Off Peak Passive Water Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.6	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Passive Water Savings		**0.0**	**0.0**	**0.1**	**0.1**	**0.2**	**0.3**	**0.3**	**0.4**	**0.5**	**0.5**	**0.6**	**0.6**	**0.7**	**0.7**	**0.8**	**0.6**	**0.5**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Customer Water Bill Savings (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$1,307	$2,664	$4,073	$5,539	$7,066	$7,031	$7,004	$6,986	$6,977	$6,978	$6,988	$7,007	$7,036	$7,075	$7,123	$5,842	$4,495	$3,076	$1,580	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$3,391	$7,086	$11,106	$15,473	$20,210	$21,117	$22,065	$23,056	$24,091	$25,173	$21,042	$16,490	$11,487	$6,001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$16,550	$34,586	$54,208	$75,522	$98,642	$103,071	$107,699	$112,534	$117,587	$122,867	$102,707	$80,489	$56,068	$29,293	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$3,235	$6,084	$8,618	$10,895	$12,964	$9,516	$6,575	$4,055	$1,883	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$3,765	$7,082	$10,030	$12,680	$15,088	$11,075	$7,652	$4,719	$2,191	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$5,468	$11,427	$17,910	$24,952	$32,591	$34,054	$35,583	$37,181	$38,850	$40,595	$33,934	$26,593	$18,525	$9,678	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$113	$236	$371	$516	$674	$705	$736	$769	$804	$840	$702	$550	$383	$200	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$1,425	$2,979	$4,669	$6,504	$8,496	$7,102	$5,565	$3,877	$2,025	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$11,963	$25,001	$39,185	$54,593	$71,305	$74,507	$77,852	$81,347	$85,000	$88,816	$92,804	$96,971	$101,325	$105,875	$110,628	$115,596	$120,786	$126,209	$131,876	$137,797	$143,984	$150,449	$157,204	$164,263	$171,638
10	CII	Restaurant Spray Nozzle Rebates	$2,263	$4,729	$7,413	$10,327	$13,489	$11,276	$8,836	$6,155	$3,216	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Wastewater Savings		**$49,481**	**$101,874**	**$157,583**	**$217,002**	**$280,523**	**$279,452**	**$279,568**	**$280,680**	**$282,625**	**$285,268**	**$258,177**	**$228,101**	**$194,825**	**$158,122**	**$117,752**	**$121,438**	**$125,281**	**$129,285**	**$133,456**	**$137,797**	**$143,984**	**$150,449**	**$157,204**	**$164,263**	**$171,638**

Wastewater Savings (AF)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	0.4	0.7	1.1	1.4	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1	0.9	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Single Family	Water Use Surveys/Audits - SFR	0.4	0.7	0.9	1.1	1.2	0.9	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.7	1.3	2.0	2.7	3.4	2.7	2.0	1.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Wastewater Savings		**1.4**	**2.7**	**4.0**	**5.1**	**6.3**	**5.1**	**4.1**	**3.1**	**2.2**	**1.3**	**1.3**	**1.2**	**1.2**	**1.1**	**1.1**	**0.9**	**0.6**	**0.4**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Customer Sewer Bill Savings (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Wastewater Savings		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Customer Electricity Savings (KWh)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	432.0	842.4	1,232.7	1,604.5	1,958.9	1,865.3	1,778.3	1,697.6	1,622.6	1,553.0	1,488.3	1,428.3	1,372.6	1,320.8	1,272.8	999.0	735.6	481.7	236.8	0.0	0.0	0.0	0.0	0.0	0.0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Multi Family	Landscape Conversion or Turf Removal - MF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

4	Single Family	Water Use Surveys/Audits - SFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	CII	Water Use Surveys/Audits - CII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	CII	Nonresidential Incentive for Self-closing or M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	CII	Restaurant Spray Nozzle Rebates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Electricity Savings		**432.0**	**842.4**	**1,232.7**	**1,604.5**	**1,958.9**	**1,865.3**	**1,778.3**	**1,697.6**	**1,622.6**	**1,553.0**	**1,488.3**	**1,428.3**	**1,372.6**	**1,320.8**	**1,272.8**	**999.0**	**735.6**	**481.7**	**236.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Customer Electricity Bill Savings (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$121	$236	$346	$450	$550	$523	$499	$476	$455	$436	$418	$401	$385	$371	$357	$280	$206	$135	$66	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Electricity Savings		**$121**	**$236**	**$346**	**$450**	**$550**	**$523**	**$499**	**$476**	**$455**	**$436**	**$418**	**$401**	**$385**	**$371**	**$357**	**$280**	**$206**	**$135**	**$66**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Customer Gas Savings (Therms)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	420	819	1,199	1,560	1,904	1,813	1,729	1,650	1,578	1,510	1,447	1,389	1,334	1,284	1,237	971	715	468	230	0	0	0	0	0	0
2	Single Family	Landscape Conversion or Turf Removal -SFR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Multi Family	Landscape Conversion or Turf Removal - MF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Single Family	Water Use Surveys/Audits - SFR	284	512	694	839	956	672	444	262	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	CII	Water Use Surveys/Audits - CII	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	CII	Nonresidential Incentive for Self-closing or M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	CII	Restaurant Spray Nozzle Rebates	1,826	3,653	5,479	7,305	9,131	7,305	5,479	3,653	1,826	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Gas Savings		**2,531**	**4,983**	**7,371**	**9,704**	**11,992**	**9,790**	**7,652**	**5,565**	**3,520**	**1,510**	**1,447**	**1,389**	**1,334**	**1,284**	**1,237**	**971**	**715**	**468**	**230**	**0**	**0**	**0**	**0**	**0**	**0**

Customer Gas Savings (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$756	$1,475	$2,159	$2,809	$3,430	$3,266	$3,114	$2,973	$2,841	$2,719	$2,606	$2,501	$2,403	$2,313	$2,229	$1,749	$1,288	$844	$415	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$512	$922	$1,250	$1,512	$1,722	$1,210	$800	$472	$210	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$1,427	$2,854	$4,280	$5,707	$7,134	$5,707	$4,280	$2,854	$1,427	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Gas Savings		**$2,695**	**$5,251**	**$7,689**	**$10,028**	**$12,286**	**$10,183**	**$8,194**	**$6,298**	**$4,478**	**$2,719**	**$2,606**	**$2,501**	**$2,403**	**$2,313**	**$2,229**	**$1,749**	**$1,288**	**$844**	**$415**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

User Entered Utility Avoided Water System Cost (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Avoided Cost		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

User Entered Utility Avoided Wastewater System Cost (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Avoided Cost		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

User Entered Other Utility Avoided Cost (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Avoided Cost		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Model Calculator Utility Water System Avoided Cost (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$577	$1,159	$1,745	$2,334	$2,926	$2,870	$2,817	$2,766	$2,717	$2,671	$2,637	$2,605	$2,575	$2,546	$2,520	$2,038	$1,545	$1,040	$525	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$1,498	$3,083	$4,757	$6,519	$8,368	$8,621	$8,875	$9,128	$9,381	$9,634	$7,941	$6,130	$4,204	$2,160	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$7,488	$15,417	$23,785	$32,593	$41,841	$43,107	$44,373	$45,639	$46,905	$48,171	$39,703	$30,652	$21,018	$10,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$1,429	$2,648	$3,691	$4,590	$5,368	$3,885	$2,644	$1,605	$733	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$1,754	$3,251	$4,532	$5,636	$6,591	$4,770	$3,247	$1,971	$900	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$2,325	$4,787	$7,386	$10,121	$12,992	$13,385	$13,779	$14,172	$14,565	$14,958	$12,328	$9,518	$6,526	$3,354	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$53	$109	$167	$229	$295	$303	$312	$321	$330	$339	$279	$216	$148	$76	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$630	$1,296	$2,000	$2,740	$3,518	$2,899	$2,238	$1,535	$789	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$5,284	$10,879	$16,784	$22,999	$29,525	$30,419	$31,312	$32,206	$33,099	$33,992	$35,021	$36,050	$37,078	$38,107	$39,136	$40,320	$41,504	$42,688	$43,872	$45,057	$46,420	$47,783	$49,147	$50,510	$51,874
10	CII	Restaurant Spray Nozzle Rebates	$1,055	$2,171	$3,349	$4,590	$5,892	$4,856	$3,749	$2,571	$1,321	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Avoided Cost		**$22,093**	**$44,799**	**$68,196**	**$92,350**	**$117,316**	**$115,118**	**$113,347**	**$111,913**	**$110,741**	**$109,766**	**$97,910**	**$85,171**	**$71,549**	**$57,043**	**$41,655**	**$42,358**	**$43,049**	**$43,729**	**$44,398**	**$45,057**	**$46,420**	**$47,783**	**$49,147**	**$50,510**	**$51,874**

Model Calculator Utility Wastewater System Avoided Cost (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	CII	Restaurant Spray Nozzle Rebates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Avoided Cost		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Total Avoided Water and Wastewater Production Cost (2020 dollars)

Activity ID	Class	Activity Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
1	Single Family	High Efficiency Clothes Washer Rebate - Res	$577	$1,159	$1,745	$2,334	$2,926	$2,870	$2,817	$2,766	$2,717	$2,671	$2,637	$2,605	$2,575	$2,546	$2,520	$2,038	$1,545	$1,040	$525	$0	$0	$0	$0	$0	$0
2	Single Family	Landscape Conversion or Turf Removal -SFR	$1,498	$3,083	$4,757	$6,519	$8,368	$8,621	$8,875	$9,128	$9,381	$9,634	$7,941	$6,130	$4,204	$2,160	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Multi Family	Landscape Conversion or Turf Removal - MF	$7,488	$15,417	$23,785	$32,593	$41,841	$43,107	$44,373	$45,639	$46,905	$48,171	$39,703	$30,652	$21,018	$10,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Single Family	Water Use Surveys/Audits - SFR	$1,429	$2,648	$3,691	$4,590	$5,368	$3,885	$2,644	$1,605	$733	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	CII	Water Use Surveys/Audits - CII	$1,754	$3,251	$4,532	$5,636	$6,591	$4,770	$3,247	$1,971	$900	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	Irrigation	Smart Irrigation Controller (Weather-Based Ir	$2,325	$4,787	$7,386	$10,121	$12,992	$13,385	$13,779	$14,172	$14,565	$14,958	$12,328	$9,518	$6,526	$3,354	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	CII	Nonresidential Incentive for Self-closing or M	$53	$109	$167	$229	$295	$303	$312	$321	$330	$339	$279	$216	$148	$76	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	Single Family	High Efficiency Faucet Aerator / Showerhead	$630	$1,296	$2,000	$2,740	$3,518	$2,899	$2,238	$1,535	$789	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	Single Family	Direct Install of Efficient Indoor Fixtures - Res	$5,284	$10,879	$16,784	$22,999	$29,525	$30,419	$31,312	$32,206	$33,099	$33,992	$35,021	$36,050	$37,078	$38,107	$39,136	$40,320	$41,504	$42,688	$43,872	$45,057	$46,420	$47,783	$49,147	$50,510	$51,874
10	CII	Restaurant Spray Nozzle Rebates	$1,055	$2,171	$3,349	$4,590	$5,892	$4,856	$3,749	$2,571	$1,321	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total Avoided Cost		**$22,093**	**$44,799**	**$68,196**	**$92,350**	**$117,316**	**$115,118**	**$113,347**	**$111,913**	**$110,741**	**$109,766**	**$97,910**	**$85,171**	**$71,549**	**$57,043**	**$41,655**	**$42,358**	**$43,049**	**$43,729**	**$44,398**	**$45,057**	**$46,420**	**$47,783**	**$49,147**	**$50,510**	**$51,874**

Appendix D

Prioritization and Screening of Future Water Conservation Measures

Prioritization and Screening of Future Water Conservation Measures
Marin-Sonoma Saving Water Partnership

INSTRUCTIONS: Please review and complete the orange highlighted cells using the provided dropdown lists. Comments and clarifications may be added to the comments column on the right. You may use the filter features to help navigate this list. "Preference for Implementation" need only be completed when a program is given a priorty of 3 or greater. See READ ME tab for additional information.

Conservation Measure/Program	Type	Indoor / Outdoor	Primary End Use	Sector	Priority as a Regional Program	Priority as a Local Program	Preference for Implementation	Current Implementation Status	Notes / Comments	Source	Added By
Agency Actions and Water Rates											
Customer Water Loss Reduction (AMI Leak Detection)	Agency action	Both	Water Loss	All						2015 Screening	EKI
Increase Enforcement of Customer Pressure Reducing Valve (PRV) Requirement	Agency action	Both	Water loss; Irrigation	All						Added 2020	EKI
Increase Enforcement of Indoor Fixture Retrofit at Time of Sale	Agency action	Indoor	Toilet, Urinal, Faucet, Showerhead	All					Enforcement of SB 407 at time of sale.	2015 Screening	EKI
Increase Enforcement of State Water Waste Regulations	Agency action	Outdoor	Irrigation	All					Assumes water waste regulations per Executive Order B-40-17 rulemaking is completed largely as currently proposed.	Added 2020	EKI
Install AMI for Existing Accounts	Agency action	Both	Water Loss	All						2015 Screening	EKI
Install AMI for High Water Users and Large Landscape Accounts	Agency action	Outdoor	Water Loss	All						2015 Screening	EKI
Install AMI in New Development	Agency action	Both	Water Loss	All						2015 Screening	EKI
Rate Structure Evaluation	Agency action	Both	All	All						2015 Screening	EKI
Regional UHET and/or Urinal Bulk Purchase Program	Agency action	Indoor	Toilet / Urinal	All					Fixtures are purchased in bulk at a discounted rate and then sold to customers at the discounted rate	2015 Screening	EKI
Water Budgeting/Monitoring for Large Landscape Accounts	Agency action	Both	Irrigation	IRR						2015 Screening	EKI
Establish Separate Pricing Structure for Irrigation Accounts	Water Rates	Outdoor	Irrigation	IRR						2015 Screening	EKI
Modification to or Implementation of Tiered Rate Conservation Pricing	Water Rates	Both	All	All						2015 Screening	EKI
Tiered Water Rates (Conservation Pricing)	Water Rates	Both	All	All						2015 Screening	EKI
Water Budget Based Billing for All Customers	Water Rates	Both	All	All						2015 Screening	EKI
Water Budget Based Billing for Only Irrigation Customers	Water Rates	Outdoor	Irrigation	CII, IRR						2015 Screening	EKI
Public Outreach and Education											
Water Use Surveys/Audits - CII	Audit/ Survey	Both	All	CII						2015 Screening	EKI
Water Use Surveys/Audits - MFR	Audit/ Survey	Indoor	All Indoor	MFR						2015 Screening	EKI
Water Use Surveys/Audits - SFR	Audit/ Survey	Both	All	SFR						2015 Screening	EKI
Educational Workshops	Public Outreach/ Workshop	Outdoor	All Outdoor	SFR						Added 2020	MMWD
Garden tour	Public Outreach/ Workshop	Outdoor	Outdoor	SFR						Added 2020	MMWD
Promote Green Building and Certification	Public Outreach/ Workshop	Both	All	All						2015 Screening	EKI
Provide Support with Smart Irrigation Controller Setup	Public Outreach/ Workshop	Outdoor	Irrigation	All						Added 2020	EKI
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	Public Outreach/ Workshop	Outdoor	All Indoor	All						2015 Screening	EKI
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	Public Outreach/ Workshop	Indoor	Irrigation	All						2015 Screening	EKI
QWEL Training (Qualified Water Efficient Landscaper)	Public Outreach/ Workshop	Outdoor	Irrigation	All						Added 2020	EKI
School Education Programs	Public Outreach/ Workshop	Both	All	SFR, MFR						2015 Screening	EKI
Device-Based and Financial Incentive Programs											
Direct Install of Efficient Indoor Fixtures - Commercial and Industrial	Direct Install/ No-Cost Device	Indoor	Toilet, Urinal, Faucet, Showerhead	CII						2015 Screening	EKI
Direct Install of Efficient Indoor Fixtures - Government Buildings	Direct Install/ No-Cost Device	Indoor	Toilet, Urinal, Faucet, Showerhead	CII						2015 Screening	EKI
Direct Install of Efficient Indoor Fixtures - Low Income Residential	Direct Install/ No-Cost Device	Indoor	Toilet, Faucet, Showerhead	SFR, MFR						2015 Screening	EKI
Direct Install of Efficient Indoor Fixtures - Residential	Direct Install/ No-Cost Device	Indoor	Toilet, Faucet, Showerhead	SFR, MFR						2015 Screening	EKI
High Efficiency Clothes Washer Install - Low Income Residential Customers	Direct Install/ No-Cost Device	Indoor	Clothes Washer	SFR, MFR						Added 2020	EKI
High Efficiency Faucet Aerator / Showerhead Giveaway - CII Customers	Direct Install/ No-Cost Device	Indoor	Faucet, Showerhead	CII						2015 Screening	EKI
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	Direct Install/ No-Cost Device	Indoor	Faucet, Showerhead	SFR, MFR						2015 Screening	EKI
Rain Barrel Giveaway	Direct Install/ No-Cost Device	Outdoor	Irrigation	SFR						Added 2020	EKI
Rain Sensor Giveaway	Direct Install/ No-Cost Device	Outdoor	Irrigation	All						2015 Screening	EKI
Rotating Sprinkler Nozzle Giveaway	Direct Install/ No-Cost Device	Outdoor	Irrigation	All						Added 2020	EKI
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - Large Landscape	Direct Install/ No-Cost Device	Outdoor	Irrigation	MFR, CII						2015 Screening	EKI
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - SFR	Direct Install/ No-Cost Device	Outdoor	Irrigation	SFR						Added 2020	EKI
Soil Moisture Sensor Giveaway	Direct Install/ No-Cost Device	Outdoor	Irrigation	All						Added 2020	EKI
Toilet Flapper Giveaway - SFR customers	Direct Install/ No-Cost Device	Indoor	Toilet	SFR, MFR					Could be used for CII customers, but hasn't been yet.	Added 2020	Santa Rosa
UHET Direct Installation - CII	Direct Install/ No-Cost Device	Indoor	Toilet	CII						2015 Screening	EKI
UHET Direct Installation - Residential	Direct Install/ No-Cost Device	Indoor	Toilet	SFR, MFR						2015 Screening	EKI
Urinal Direct Installation - CII	Direct Install/ No-Cost Device	Indoor	Urinal	CII						Added 2020	EKI
Autoclave (Steam-Sterilizer) Retrofit Rebates	Rebate/ Financial Incentive	Indoor	CII Equipment	CII					More info: https://www.energy.gov/eere/femp/water-efficient-technology-opportunity-steam-sterilizer-condensate-retrofit-kit	Added 2020	EKI
Connectionless Food Steamer Rebates	Rebate/ Financial Incentive	Indoor	CII Equipment	CII					More info: https://www.energy.gov/eere/femp/water-efficient-technology-opportunity-connectionless-food-steamer	Added 2020	EKI
Dipper Well Rebates	Rebate/ Financial Incentive	Indoor	CII Equipment	CII					Incentivize replacement of perpetual-flow holders for ice cream dippers & utensils; https://server-products.com/equipment/conservewell/utensil-holder/87740.htm	Added 2020	EKI
Drip Irrigation Incentive for MFR and CII	Rebate/ Financial Incentive	Outdoor	Irrigation	MFR, CII						2015 Screening	EKI
Drip Irrigation Incentive for SFR	Rebate/ Financial Incentive	Outdoor	Irrigation	SFR						2015 Screening	EKI
Dry Vacuum Pumps	Rebate/ Financial Incentive	Indoor	CII Equipment	CII						2015 Screening	EKI
Efficient (EnergyStar) Dishwasher Rebates	Rebate/ Financial Incentive	Indoor	Dishwashers	SFR						2015 Screening	EKI
High Efficiency Clothes Washer Rebate - Residential	Rebate/ Financial Incentive	Indoor	Clothes Washer	SFR, MFR						2015 Screening	EKI
High Efficiency Clothes Washer Rebate Program - CII	Rebate/ Financial Incentive	Indoor	Clothes Washer	CII						2015 Screening	EKI
High Efficiency Urinal (<0.25 gal/flush) Rebates - CII	Rebate/ Financial Incentive	Indoor	Urinal	CII						2015 Screening	EKI

Prioritization and Screening of Future Water Conservation Measures
Marin-Sonoma Saving Water Partnership

INSTRUCTIONS: Please review and complete the orange highlighted cells using the provided dropdown lists. Comments and clarifications may be added to the comments column on the right. You may use the filter features to help navigate this list. "Preference for Implementation" need only be completed when a program is given a priorty of 3 or greater. See READ ME tab for additional information.

Conservation Measure/Program	Type	Indoor / Outdoor	Primary End Use	Sector	Priority as a Regional Program	Priority as a Local Program	Preference for Implementation	Current Implementation Status	Notes / Comments	Source	Added By
Hot Water on Demand Pump System Rebate	Rebate/ Financial Incentive	Indoor	Hot Water	SFR, MFR						2015 Screening	EKI
Incentivize Artificial Turf for Sports Fields	Rebate/ Financial Incentive	Outdoor	Irrigation	CII						2015 Screening	EKI
Incentivize Cooling Tower Upgrades	Rebate/ Financial Incentive	Indoor	Cooling Towers	CII						Added 2020	EKI
Incentivize Gray Water Retrofit for Existing SFR Customers	Rebate/ Financial Incentive	Outdoor	Irrigation / Gray Water	SFR						2015 Screening	EKI
Incentivize Gray Water Systems for New CII Development	Rebate/ Financial Incentive	Both	Irrigation / Gray Water	CII						2015 Screening	EKI
Incentivize Irrigation Equipment Upgrades - Large Landscapes	Rebate/ Financial Incentive	Outdoor	Irrigation	MFR, CII, IRR						2015 Screening	EKI
Incentivize Irrigation Equipment Upgrades - SFR	Rebate/ Financial Incentive	Outdoor	Irrigation	SFR						2015 Screening	EKI
Incentivize Replacement of Inefficient Commercial and Industrial Equipment	Rebate/ Financial Incentive	Indoor	CII Equipment	CII					Example: SoCal Water Smart Water Savings Incentive Program: https://socalwatersmart.com/en/commercial/water-savings-incentive-program/	2015 Screening	EKI
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	Rebate/ Financial Incentive	Both	Water loss; Irrigation	All					PRVs must be installed by customers with pressure exceeding 80 psi, per the plumbing code	2015 Screening	EKI
Incentivize Submetering for Existing Customers - CII	Rebate/ Financial Incentive	Both	All Indoor	MFR, COM, IRR						2015 Screening	EKI
Incentivize Submetering for Existing Customers - MFR	Rebate/ Financial Incentive	Both	All Indoor	MFR						2015 Screening	EKI
Incentivize Submetering of Cooling Towers for Existing Customers	Rebate/ Financial Incentive	Indoor	Cooling Towers	CII						2015 Screening	EKI
Indoor Fixture Program For Hotels & Motels	Rebate/ Financial Incentive	Indoor	All Indoor	CII						2015 Screening	EKI
Indoor Fixture Program For Schools	Rebate/ Financial Incentive	Indoor	All Indoor	CII						2015 Screening	EKI
Landscape Conversion or Turf Removal - MFR and CII	Rebate/ Financial Incentive	Outdoor	Irrigation	MFR, CII						2015 Screening	EKI
Landscape Conversion or Turf Removal -SFR	Rebate/ Financial Incentive	Outdoor	Irrigation	SFR						2015 Screening	EKI
Mulch rebate	Rebate/ Financial Incentive	Outdoor	Irrigation	SFR						Added 2020	MMWD
Nonresidential Incentive for Self-closing or Metering Faucets	Rebate/ Financial Incentive	Indoor	Faucet	CII						Added 2020	Sonoma
Plumber Initiated UHET and / or Urinal Retrofit Program	Rebate/ Financial Incentive	Indoor	Toilet	All						2015 Screening	EKI
Rain Barrel Rebate	Rebate/ Financial Incentive	Outdoor	Irrigation	SFR						2015 Screening	EKI
Rain Sensor Rebate	Rebate/ Financial Incentive	Outdoor	Irrigation	All						2015 Screening	EKI
Rainwater Catchment System Rebate for Large Landscapes	Rebate/ Financial Incentive	Outdoor	Irrigation	MFR, CII						2015 Screening	EKI
Rebates for Conductivity Controllers on Cooling Towers	Rebate/ Financial Incentive	Indoor	Cooling Towers	CII						2015 Screening	EKI
Restaurant Spray Nozzle Rebates	Rebate/ Financial Incentive	Indoor	CII Equipment	CII						2015 Screening	EKI
Rotating Sprinkler Nozzle Rebate	Rebate/ Financial Incentive	Outdoor	Irrigation	All						2015 Screening	EKI
Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates - Large Landscape	Rebate/ Financial Incentive	Outdoor	Irrigation	MFR, CII						2015 Screening	EKI
Smart Irrigation Controller (Weather-Based Irrigation Controller) Rebates - SFR	Rebate/ Financial Incentive	Outdoor	Irrigation	SFR						2015 Screening	EKI
Soil Moisture Sensor Rebate	Rebate/ Financial Incentive	Outdoor	Irrigation	All						2015 Screening	EKI
Swimming Pool and Hot Tub Cover Rebates	Rebate/ Financial Incentive	Outdoor	Pool/Hot Tub	SFR, MFR						Added 2020	EKI
Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates	Rebate/ Financial Incentive	Indoor	Shower	SFR, MFR, CII					Reduce hot water use before showering https://www.thinkevolve.com/	Added 2020	EKI
Tier 4 Exemption	Rebate/ Financial Incentive	Both	toilet, Faucet, Showerhead, clothes washer, irrigation	SFR					Exemption from high tier water rates w/installation of devices	Added 2020	MMWD
UHET <1.0 gal/flush Rebate - CII	Rebate/ Financial Incentive	Indoor	Toilet	CII						2015 Screening	EKI
UHET <1.0 gal/flush Rebate - Residential	Rebate/ Financial Incentive	Indoor	Toilet	SFR, MFR						2015 Screening	EKI
Water Savings Incentive Program for CII	Rebate/ Financial Incentive	Indoor	All Indoor	CII					Financial incentive to reward demonstrated water savings and offset capital improvement costs; Example: SoCal Water Smart Water Savings Incentive Program: https://socalwatersmart.com/en/commercial/water-savings-incentive-program/	2015 Screening	EKI
Policies and Regulations											
Demand Offset/Water Neutral Policy for Large New Developments	Policy/ Regulation	Both	All	All						Added 2020	EKI
Prohibit Once through Cooling Systems	Policy/ Regulation	Both	CII Equipment	CII						2015 Screening	EKI
Require <0.25 gal/flush Urinals in New Development	Policy/ Regulation	Indoor	Urinal	CII						2015 Screening	EKI
Require <1.0 gal/flush Toilets in New Development	Policy/ Regulation	Indoor	Toilet	All					State minimum efficiency is 1.28 gal/flush	Added 2020	EKI
Require Cooling Tower Retrofits	Policy/ Regulation	Indoor	Cooling Towers	CII						2015 Screening	EKI
Require Efficient (EnergyStar) Dishwashers in New Development	Policy/ Regulation	Indoor	Dishwashers	SFR, MFR						2015 Screening	EKI
Require High Efficiency Clothes Washers in New Development	Policy/ Regulation	Indoor	Clothes Washer	SFR, MFR						2015 Screening	EKI
Require Hot Water on Demand / Structured Plumbing in New Residential Development	Policy/ Regulation	Indoor	Shower/Sink	SFR, MFR						2015 Screening	EKI
Require Irrigation Designers / Installers be Certified (QWEL)	Policy/ Regulation	Outdoor	Irrigation	All						2015 Screening	EKI
Require On-Site Water Reuse Systems (Grey Water or Black Water) for Large CII Developments	Policy/ Regulation	Outdoor	Irrigation / Recycled Water	CII					Example: https://sfwater.org/index.aspx?page=686	Added 2020	EKI
Require Plumbing for Gray Water in New SFR Development	Policy/ Regulation	Outdoor	Irrigation / Gray Water	SFR						2015 Screening	EKI
Require Plumbing for Recycled Water in New CII Development	Policy/ Regulation	Outdoor	Irrigation / Recycled Water	CII						Added 2020	EKI
Require Plumbing for Recycled Water in New MFR Development	Policy/ Regulation	Outdoor	Irrigation / Recycled Water	MFR						Added 2020	EKI
Require Rain Barrels in New Development	Policy/ Regulation	Outdoor	Irrigation	SFR						2015 Screening	EKI
Require Submetering by Unit for Existing Commercial Customers	Policy/ Regulation	Indoor	All Indoor	CII						Added 2020	EKI
Require Submetering by Unit for New Commercial Developments	Policy/ Regulation	Indoor	All Indoor	CII						Added 2020	EKI
Require Submetering for New MFR Developments	Policy/ Regulation	Indoor	All Indoor	MFR						2015 Screening	EKI
Require Submetering for New Mobile Home Park Developments	Policy/ Regulation	Indoor	All Indoor	MFR						2015 Screening	EKI
Require Submetering of Cooling Towers for Existing Customers	Policy/ Regulation	Indoor	Cooling Towers	CII						Added 2020	EKI
Require Submetering of Cooling Towers for New Development	Policy/ Regulation	Indoor	Cooling Towers	CII						Added 2020	EKI
Require Submetering of Existing MFR (and Mobile Home Park) Customers	Policy/ Regulation	Indoor	All Indoor	MFR						Added 2020	EKI
Require Submetering of Landscaping for Existing MFR and Commercial Customers	Policy/ Regulation	Outdoor	Irrigation	MFR, CII						Added 2020	EKI
Require Submetering of Landscaping for New MFR and Commercial Developments	Policy/ Regulation	Outdoor	Irrigation	CII						Added 2020	EKI
Require Swimming Pool and Hot Tub Covers	Policy/ Regulation	Outdoor	Pool/Hot Tub	SFR, MFR						2015 Screening	EKI

Prioritization and Screening of Future Water Conservation Measures
Marin-Sonoma Saving Water Partnership

INSTRUCTIONS: Please review and complete the orange highlighted cells using the provided dropdown lists. Comments and clarifications may be added to the comments column on the right. You may use the filter features to help navigate this list. "Preference for Implementation" need only be completed when a program is given a priorty of 3 or greater. See READ ME tab for additional information.

Conservation Measure/Program	Type	Indoor / Outdoor	Primary End Use	Sector	Priority as a Regional Program	Priority as a Local Program	Preference for Implementation	Current Implementation Status	Notes / Comments	Source	Added By
Require Water Efficiency Plan Reviews for New CII Development	Policy/ Regulation	Both	All Indoor	CII						2015 Screening	EKI
Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development	Policy/ Regulation	Outdoor	Irrigation	All						2015 Screening	EKI
Restrict Landscape Irrigation to Designated Days/Times	Policy/ Regulation	Outdoor	Irrigation	All					Under all conditions, not just drought	2015 Screening	EKI
Water Conserving Landscape and Irrigation Codes, More Stringent than MWELO	Policy/ Regulation	Outdoor	Irrigation	All						2015 Screening	EKI
Water Waste Ordinance	Policy/ Regulation	Outdoor	All Outdoor	All						Added 2020	MMWD

Abbreviations:
AMI = advanced metering infrastructure
CII = commercial, industrial, institutional
COM = commercial
HET = high efficiency toilet
HEU = high efficiency urinal
Info = information
IRR = irrigation account
MFR = multi-family residential
MWELO = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marin Saving Water Partnership
UHET = ultra high efficiency toilet

Appendix C

UWMP Agency Notification Letters

City of Sonoma

Department of Public Works
No. 1 The Plaza
Sonoma California 95476-6690
Phone (707) 938-3332 Fax (707) 938-3240

January 21, 2021

To: Interested Parties

Re: **Notice of Preparation of Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Sonoma ("City") to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City is currently reviewing its existing UWMP and associated WSCP, which were updated in 2016, and considering revisions to the documents. The updated UWMP and WSCP are due by July 1, 2021. We invite your agency's participation in this revision process.

A draft of the 2020 UWMP and WSCP will be made available for public review and a public hearing will be scheduled during the spring of 2021. In the meantime, if you would like more information regarding the City's 2015 UWMP and WSCP and the schedule for updating these documents, or if you would like to participate in the preparation of the 2020 UWMP and WSCP, please contact me at:

City of Sonoma
No. 1 The Plaza
Sonoma, CA 95476
Phone: (707) 933-2230
cferguson@sonomacity.org

Sincerely,

J. Colleen Ferguson

J. Colleen Ferguson
Public Works Director/City Engineer

Distribution List:
- Sonoma LAFCO (Mark Bramfitt)
- Sonoma Water (Grant Davis)
- Sonoma Valley County Sanitation District (Kevin Booker)
- Sonoma Valley Groundwater Sustainability Agency (Ann DuBay)
- City of Santa Rosa (Jennifer Burke)
- City of Rohnert Park (Mary Grace Pawson)
- City of Cotati (Craig Scott)
- City of Petaluma (Jason Beatty)
- County of Sonoma, PRMD (Tennis Wick)
- Marin Municipal Water District (Ben Horenstein)
- North Marin Water District (Drew McIntyre)
- Town of Windsor (Sandi Potter)
- Valley of the Moon Water District (Matt Fullner)

City of Sonoma

Department of Public Works
No. 1 The Plaza
Sonoma California 95476-6690
Phone (707) 938-3332 Fax (707) 938-3240

May 21, 2021

To: Interested Parties, Via e-mail

Re: Notice of Public Hearing Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Sonoma (City) to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City must also make the draft documents available for public review and hold a public hearing before adopting its UWMP and associated WSCP.

This is to notify you that the City will hold a public hearing on June 7, 2021 at 6:00 pm to consider proposed revisions and updates to the 2020 UWMP and associated WSCP. We invite your agency's participation in the process. In conjunction with the update to the UWMP, the public may also provide input on the urban water use target included in the UWMP, any impacts to the local economy, and the City's method of determining its urban water use target. The UWMP and associated WSCP are available for public review at https://www.sonomacity.org/. Visit https://www.sonomacity.org/departments/city-council/ for the City Council meeting agenda and for links to the public hearing.

If you have any questions about the 2020 UWMP or WSCP or the process for updating these documents, please contact me at (707) 933-2230 or cferguson@sonomacity.org.

Sincerely,

J. Colleen Ferguson
Public Works Director/City Engineer

Distribution List:
- Sonoma LAFCO (Mark Bramfitt)
- Sonoma Water (Grant Davis)
- Sonoma Valley County Sanitation District (Kevin Booker)
- Sonoma Valley Groundwater Sustainability Agency (Ann DuBay)
- City of Santa Rosa (Jennifer Burke)
- City of Rohnert Park (Mary Grace Pawson)
- City of Cotati (Craig Scott)
- City of Petaluma (Jason Beatty)
- County of Sonoma, PRMD (Tennis Wick)
- Marin Municipal Water District (Ben Horenstein)
- North Marin Water District (Drew McIntyre)
- Town of Windsor (Sandi Potter)
- Valley of the Moon Water District (Matt Fullner)

Appendix D

UWMP Public Hearing Notices

NOTICE OF PUBLIC HEARING

Notice is hereby given that the City Council of the City of Sonoma, at a Regular Meeting on **June 7, 2021**, via an electronic meeting platform, will conduct public hearings on the projects described below at 6:00 p.m., or as soon thereafter as the matter may be reached:

1. **Zoning Code Amendment to add definitions for Affordable Housing Household Income Categories.** Introduction of an Ordinance Amending Division VIII – Definitions, Section 19.92 - "Definitions" of the Sonoma Municipal Code by adding the terms "Extremely Low Income", "Very Low Income", "Low Income", "Moderate Income", "Middle Income" and "Above Moderate Income" and Finding this Action to be Exempt from the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) ("CEQA") and the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.), pursuant to CEQA Guidelines section 15061(B)(3) – General Rule. Project Planner: Kristina Tierney, Associate Planner.
2. **Affordable Housing In Lieu Fees for New Residential Development Projects.** Consideration, discussion, and possible adoption of a resolution establishing residential and affordable housing in lieu fees for new development consistent with policies in the City's certified Housing Element as contained within the City's General Plan and Finding This Action to be Exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15061(b)(3). Project Planner: Kristina Tierney, Associate Planner.
3. **2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP).** Receive comments on the 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP), which are adopted every five years. The purpose of the UWMP and WSCP is to consolidate information regarding water supply and demand, provide public information, and improve state-wide water planning. In conjunction with the updates to the UWMP and WSCP, the community is given the opportunity to give input on the City's method of determining its urban water use target, the City's implementation plan for meeting said target and any impacts to the local economy resulting from this implementation plan. This Action is Exempt from the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) ("CEQA") and the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.), pursuant to CEQA Guidelines section 15061(B)(3) – General Rule

The UWMP and WSCP may be reviewed at https://www.sonomacity.org/.

Visit https://www.sonomacity.org/departments/city-council/ for the City Council meeting agenda and for links to the virtual public hearing.

Public Response: Interested parties are invited to address any comments directly to the City Council, via email to publiccomment@sonomacity.org by 5 p.m. on **June 7, 2021**. Public Comment will only be received by email to the email listed above. Please refer to the meeting agenda for details. A staff report will normally be available on the Thursday prior to the City Council meeting.

SPECIAL PUBLIC COMMENT INSTRUCTIONS DURING COVID-19 PANDEMIC

Consistent with Executive Orders No.-25-20 and No. N-29-20 from the Executive Department of the State of California and the Sonoma County Health Official's March 17, 2020 Shelter in Place Order, the City Council Chambers will not be physically open to the public and City Council Members will be teleconferencing into the meeting via an electronic meeting platform. The meetings will continue to be live streamed on the City's CivicWeb Portal (sonomacity.civicweb.net) and YouTube Channel (https://www.youtube.com/channel/UChZjUrg2rNLYxTgQHhFy-Tg).

The City of Sonoma has, by resolution, adopted the time limits set forth in California Civil Procedure Section 1094.6. Pursuant to these time limits and those set forth in Cal. Gov't Code Section 65009, should any member of the public seek judicial review of a decision on the project, such action must be filed and served no later than the ninetieth day following the date of the administrative decision.

If you challenge any action taken at a public hearing on any of the above applications in court, you may be limited to raising only those issues you or someone else raised at the public hearing(s) described in this notice, or in written correspondence delivered to the City at, or prior to, the public hearing.

Date of Notice: May 21, 2021 and May 28, 2021

David A. Storer, AICP
Planning & Community Services Director
City of Sonoma

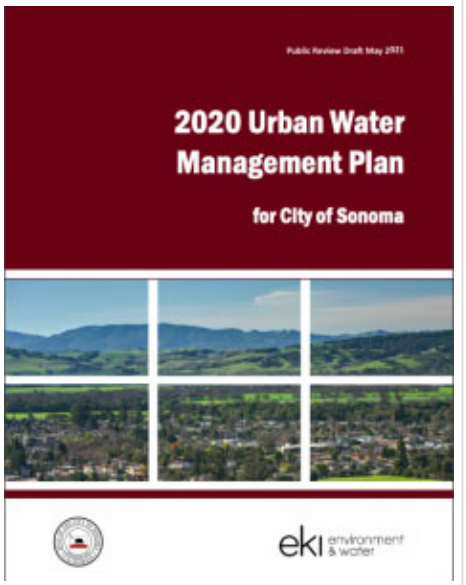
89527 – Pub May 21, 28, 2021 2ti.

Learn about City Services (https://www.sonomacity.org/city-services-during-covid-19/) during COVID-19 | Get Coronavirus Information & Resources (https://www.sonomacity.org/coronavirus/) | Find a COVID-19 Vaccine (https://www.sonomacity.org/covid-vaccine/)

The City of Sonoma has declared a **Stage 1 Water Shortage** (https://www.sonomacity.org/drought/)| Water customers are urged to reduce water use by 15%

Notice of Public Hearing on 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Posted on May 20, 2021



(https://www.sonomacity.org/documents/draft-urban-water-management-plan-2020/)

Click to View Plan

The Sonoma City Council will hold a public hearing to receive comments on the 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) (https://www.sonomacity.org/documents/notice-of-public-hearing-for-2020-urban-water-

management-plan-and-water-shortage-contingency-plan/) at their regular meeting on June 7th at 6:00 PM. Read the complete notice of public hearing (https://www.sonomacity.org/documents/notice-of-public-hearing-for-2020-urban-water-management-plan-and-water-shortage-contingency-plan/).

The UWMP and WSCP are adopted every five years for the purpose of consolidating information regarding water supply and demand, provide public information, and improve statewide water planning. In conjunction with the updates to the UWMP and WSCP, the community is given the opportunity to give input on the City's method of determining its urban water use target, the City's implementation plan for meeting said target, and any impacts to the local economy resulting from this implementation plan.

The public is invited to review and download the UWMP and WSCP on the City's website (https://www.sonomacity.org/documents/draft-urban-water-management-plan-2020/).

We Want to Hear From You!

Interested parties are invited to address any comments directly to the City Council, via email to publiccomment@sonomacity.org (mailto:publiccomment@sonomacity.org) by 5 p.m. on **June 7, 2021**. Public Comment will only be received by email to the email listed above.

Interested attendees should visit the City's CivicWeb portal (https://sonomacity.civicweb.net/Portal/) to confirm the meeting location, time, and agenda. An agenda and staff report will normally be available on the Thursday prior to the City Council meeting. To receive future City Council meeting notifications via email, please subscribe (https://sonomacity.civicweb.net/Portal/Subscribe.aspx).

Recent news

Valley of the Moon Water District and the City of Sonoma seek assistance saving the groundwater aquifer for critical uses during this historic drought (https://www.sonomacity.org/valley-of-the-moon-water-district-and-the-city-of-sonoma-seek-assistance-saving-the-groundwater-aquifer-for-critical-uses-during-this-historic-drought/)

Posted on June 16, 2021

County Aligns with State Reopening Plan, New Guidance on Facial Coverings Effective Today (6/15) (https://www.sonomacity.org/county-aligns-with-state-reopening-plan-new-guidance-on-facial-coverings-effective-today-6-15/)

Posted on June 15, 2021

Now Accepting Applications – Affordable 1 Bed/1 Bath Unit in Oliva Apartments (https://www.sonomacity.org/now-accepting-applications-affordable-1-bed-1-bath-unit-in-oliva-apartments/)

Posted on June 15, 2021

PG&E Offers Backup Power Programs to Lessen Impact of PSPS Events (https://www.sonomacity.org/back-up-power-programs/)

Posted on June 14, 2021

Notice of Public Hearing on Water Shortage Emergency Declaration – June 21st (https://www.sonomacity.org/notice-of-public-hearing-on-water-shortage-emergency-declaration-june-21st/)

Posted on June 11, 2021

All news » (/news)

Contact

City of Sonoma
Phone: (707) 938-3681
Hours: 8:00 a.m. - 5:00 p.m.
Closed: 12:00p.m. - 1:00 p.m. for lunch

Monday-Friday

Directory (/contact) Feedback (/feedback)
Accessibility (/accessibility-statement) Sitemap (/sitemap)

Subscribe

Subscribe to City news and updates.

Subscribe to more lists > (/subscribe)

Enter email

Subscribe

Connect

Facebook (https://facebook.com/CityOfSonoma)

Powered by (https://proudcity.com)

Appendix E

SBx7-7 Compliance Tables

SB X7-7 2020 Compliance Form

The SB X7-7 2020 Compliance Form is for the calculation of 2020 compliance only. All retail suppliers must complete the SB X7-7 Compliance Form. Baseline and target calculations are done in the SB X 7-7 Verification Form.

The SB X7-7 Verification Form is for the calculation of baselines and targets and is a separate workbook from the SB X7-7 2020 Compliance Form. Most Suppliers will have completed the SB X7-7 Verification Form with their 2015 UWMP and do not need to complete this form again in 2020. See Chapter 5 Section 5.3 of the UWMP Guidebook for more information regarding which Suppliers must, or may, complete the SB X7-7 Verification Form for their 2020 UWMP. 2020 compliance calculations are done in the SB X7-7 2020 Compliance Form.

WUE Data Portal Entry Exceptions

The data from the tables below will not be entered into WUE Data Portal tables. These tables will be submitted as separate uploads, in Excel, to WUE Data Portal.

Process Water Deduction

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D

A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE Data Portal, and include them in its UWMP.

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	11,725
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**2020 Deductions**					**2020 Gross Water Use**
		Exported Water *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	2,174	-	-	-	-	-	**2,174**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	SCWA
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	1,965	-	1,965

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Groundwater
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	209		209

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
2,174	11,725	**166**
NOTES:		

SB X7-7 Table 9: 2020 Compliance							
Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD Enter "0" if Adjustment Not Used Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]	TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
166	-	-	-	-	166	180	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

5. SB X7-7 BASELINES AND TARGETS

This section presents the SB X7-7 baseline and target gallons per capita per day (GPCD) analysis for the City of Sonoma.

5.1 Updating Calculations from 2010 UWMP

The Water Conservation Act of 2009 (SB X7-7) is one of four policy bills enacted as part of the November 2009 Comprehensive Water Package (Special Session Policy Bills and Bond Summary). The Water Conservation Act of 2009 provides the regulatory framework to support the statewide reduction in urban per capita water use described in the *20x2020 Water Conservation Plan* (DWR, 2010). Consistent with SB X7-7, each water supplier must determine and report its existing baseline water consumption and establish future water use targets in GPCD; reporting began with the 2010 UWMP.

In this 2015 UWMP, agencies had the chance to change the years selected for their baseline periods as compared to their 2010 UWMPs. Agencies could choose to make this change based on changes to their calculated population (see Section 5.3) which could have affected the baseline and target GPCD values.

5.1.1 Update of Target Method

Under SB X7-7, each individual urban water supplier (i.e., the City) must develop a water use target for year 2020 using one of four allowable methods. The 2015 interim target is a water use target that is halfway between the base daily per capita water use of 225 GPCD and the 2020 water use target. There is no penalty if an agency does not achieve its 2015 interim target.

There are four methods established by the California Department of Water Resources, the agency charged with establishing such methodologies under the legislative act, which the City may use to develop 2015 and 2020 water use targets. Three methods are provided in SB X7-7; the fourth was subsequently established by the DWR. The four methods are generally described below. A more complete description can be found in DWR's 2015 Urban Water Management Plans Guidebook for Urban Water Suppliers (DWR, 2016).

- Method 1: 80% of Base Daily Per Capita Use
- Method 2: Performance standards based on actual water use data for indoor residential water use, landscaped area, and commercial, industrial, and institutional (CII) water use
- Method 3: 95% of the San Francisco Bay hydrologic region (see Figure 5-1)
- Method 4: Savings by water sector (indoor residential and CII) and landscape and water loss savings

As presented in the following SB X7-7 Table 7, the City has elected to use Method 1 for the development of its individual water use target. The City used the same target Method 1 in their 2010 UWMP.

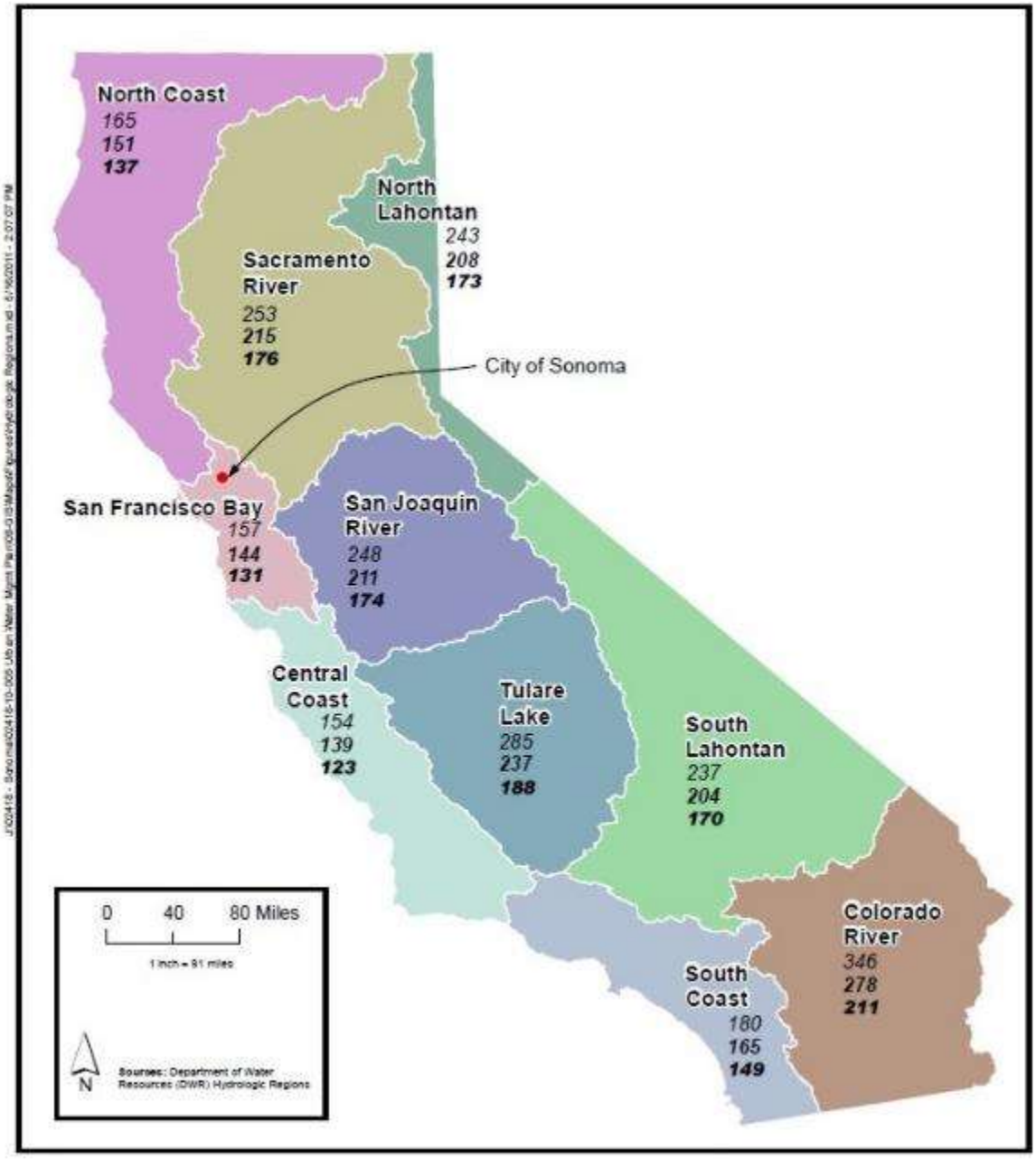
SB X7-7 Table 7: 2020 Target Method
Select Only One

Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator

Once the water use targets are determined, SB X7-7 requires confirmation that the water use targets meet the minimum water use reduction established by statute. In the City's case, the 2020 water use target established must be less than or equal to 80% of 225 GPCD or a 2020 target of 180 GPCD, as presented in the following table.

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	2020 Target GPCD
225	180

Figure 5-1. Hydrologic Region Map



A second requirement for completing the 2015 UWMP is that the City determine its 5-year base daily per capita water use. If the 5-year base daily water use exceeds 100 GPCD, then the 2020 water use target established by the City must be less than or equal to 95% of this 5-year baseline. As shown in Table 5-1, the 5-year base daily per capita water use is 206 GPCD.

Table 5-1. Baselines and Targets Summary

Table 5-1 Baselines and Targets Summary: *Retail Agency*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1995	2004	225	202	180
5 Year	2003	2007	206		
*All values are in Gallons per Capita per Day (GPCD).					

The following table from the SB X7-7 Verification Form, presents the City's 2015 interim GPCD target.

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	2015 Interim Target GPCD
180	225	202

Additionally, the following table from the SB X7-7 Verification Form, presents the City's 2020 GPCD target.

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target*	Calculated 2020 Target *Fm Appropriate Target Table*	Confirmed 2020 Target
206	196	180	180
** Maximum 2020 Target is 95% of the 5 Year Baseline GPCD*			

5.7 2015 Compliance Daily per Capita Water Use (GPCD)

The 2015 per capita water use for the City is 141 GPCD as shown in Table 5-2; this value is below their 2015 interim target of 202.

Appendix F

Water Shortage Contingency Plan

Water Shortage Contingency Plan
2020 Update
City of Sonoma

June 2021

DRAFT - May 2021

TABLE OF CONTENTS

TABLES

ATTACHMENTS

1 INTRODUCTION

☑ ***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.

City of Sonoma's (City'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 2015 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 City 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 Urban Water Management Plan (UWMP) Act. Text from the UWMP Act has been included in grey text boxes with italicized font at beginning of relevant sections of this WSCP. 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

☑ ***CWC § 10632 (a) (1)*** *The analysis of water supply reliability conducted pursuant to Section 10635.*

This section provides a summary of City's water supply reliability analysis, recognizing that the WSCP is intended to be a standalone document that can be adopted and amended independently.

The City relies and plans to rely on two main water supply sources, including surface water supplies from the Sonoma County Water Agency (SCWA) and groundwater production.

The reliability analysis was performed based on, among other things, SCWA's water reliability analysis and the total safe yield of the City's wells. Based on the service reliability analysis, the City is expected to have adequate water supplies during normal years and dry years to meet projected demands through 2045.

A Drought Risk Assessment (DRA) was also conducted during the 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 DRA, the City is expected to have sufficient water supply from 2021 to 2025. This WSCP addresses potential water shortage conditions and identifies a variety of actions that the City will implement to reduce demands and further ensure supply reliability at various levels of water shortage.

3 PRIOR DROUGHT ACTIONS

The City has historically developed different strategies for reducing water demand during water shortages. The City's actions in response to the recent severe drought that occurred in California between 2014 and 2017 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 percent reduction in potable urban water usage through February 2016. The Executive Order also requires commercial, industrial, and institutional (CII) users to implement water efficiency measures, prohibits irrigation with potable water of ornamental turf in public street medians, and prohibits 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) range from 8 percent for suppliers with an R-GPCD below 65 R-GPCD, up to 36 percent 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 City was required to reduce water use by 28 percent relative to its 2013 water use.

Through enactment of its WSCP, the City surpassed these reduction targets. During the June 2015 through May 2016 compliance period, the City surpassed its water use reduction target with a cumulative savings of 29.5 percent relative to its 2013 use.

In June 2016, the City adopted its 2015 UWMP and associated WSCP update. In April 2017, Governor Brown ended the drought State of Emergency. In April 2021, during the preparation of this document, Governor Newsom declared a drought emergency for Sonoma County.

4 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

☑ ***CWC § 10632 (a) (2)***

The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

☑ ***CWC § 10632.1***

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

☑ ***CWC § 10632.2***

An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

On an annual basis, the City will conduct a Supply-Demand Assessment (SDA) to identify whether there is likely to be a water shortage condition in the following year. Because the City's primary source of 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 10 percent, corresponding to Water Shortage Level 2. Each element of the SDA 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 City 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 City 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 SCWA aqueduct system. The City 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 1** of this WSCP. As discussed in **Attachment 1**, 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.

- **Groundwater Supply Well Constraints –** A comparison of groundwater level elevations to well operational depths to identify the any constraints on accessing the groundwater supply (e.g., dropping water levels due to limited rainfall/runoff) and to identify any potential needs to site and drill additional supply wells and/or rehabilitate existing wells, to the extent economically feasible.

- **Local Regulatory Conditions –** Evaluation of (1) any new Groundwater Sustainability Agency (GSA) policies (e.g., pumping allocations) or sustainability criteria that could trigger a change in groundwater volume available for pumping, and (2) any new limitations on well permitting that could limit the ability to deepen existing supply wells or drill new supply wells.

- **State Regulatory Conditions –** Evaluation of any state-mandated drought or water use restrictions known during preparation of the SDA.

These criteria will be assessed by the City staff with detailed knowledge of City operations, including the Public Works Director and the Water Supervisor. The data used to support these

assessments may include, but are not limited to, groundwater levels, system demand, and available supply from SCWA.

2. Water Supply

   Based on the evaluation criteria above and available supporting information, the City 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 City (e.g., pandemic-related stay-at-home orders).

4. Planned Water Use for Current Year Considering Dry Subsequent Year

   The City 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 10 percent supply shortfall), using the Evaluation Criteria identified above.

5. Infrastructure Considerations

   The City will evaluate how infrastructure capabilities and constraints may affect its ability to deliver supplies to meet expected customer water demands in the coming year. This evaluation will include consideration of both City infrastructure and SCWA infrastructure. The constraints and capabilities are expected to include, among other things:

   - Anticipated capital projects and upgrades,
   - Anticipated maintenance and repairs, and
   - Needed repairs or other actions due to unanticipated emergencies such as fires.

6. Team Members and Decision Makers

   The Public Works Director is the primary decision maker, relying on information from and discussions with SCWA and the Water Supervisor.

7. Timeline

   Table 4-1 shows the timeline for preparing the annual assessment.

Table 4-1 Annual Assessment Procedures Decision-Making Timeline

Decision-Making Step	Start Date	End Date
Determine groundwater supply capacity for the current year.	February	April
Obtain Draft Annual Assessment from SCWA; Provide Comments on SCWA Draft Assessment.	April	April
Calculate water supply reliability using data from SCWA and City's groundwater supply wells.	March	April
Determine shortages and response actions.	April	May
Prepare and present preliminary report to the Council if a supply shortage is identified.	April	May
Update assessment based on final water supplies.	April	May
Prepare decision-making documents for approval and activating appropriate protocols to declare a WSCP stage of action as necessary.	May	June
Prepare annual water shortage assessment report.	May	June
Obtain the Final Annual Assessment from SCWA; Prepare the draft Annual Assessment for a June Council meeting; Implement WSCP actions as approved.	May	June
Submit final annual water shortage assessment report to the State.	June	No later than July 1st of each year beginning in 2022
NOTES:		

Consistent with California Water Code (CWC) § 10632.1, the City will perform and submit an SDA to DWR by July 1st of each year beginning in 2022.

5 WATER SHORTAGE LEVELS

☑ ***CWC § 10632 (a) (3)***

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

Consistent with the requirements of CWC § 10632(a)(3), this WSCP is based on the six water shortage levels (also referred to as "stages") shown in **Table 5-1**. These stages are intended to address shortage caused by any condition, including the catastrophic interruption of water supplies. **Table 5-1** also summarizes the water supply reductions and supply conditions associated with each stage of action.

Table 5-1 Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	Minimal Shortage – Up to 10% (Voluntary)
2	Up to 20%	Moderate Shortage – Up to 20% (Mandatory)
3	Up to 30%	Severe Shortage – 20% to 30% (Mandatory)
4	Up to 40%	Severe Shortage – 30% to 40% (Mandatory)
5	Up to 50%	Critical Shortage – 40% to 50% (Mandatory)
6	>50%	Critical Shortage – greater than 50% (Mandatory)
NOTES: The appropriate Stage will be enacted by City Council to respond to the corresponding estimated water shortage that may result from the following: droughts, extreme weather events, natural disasters, extended power outages, reduced deliveries from the SCWA, regulatory droughts, and other water shortage conditions.		

6 SHORTAGE RESPONSE ACTIONS

☑ ***CWC § 10632 (a) (4)***

Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

☑ ***CWC § 10632 (b)***

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

This section describes the response actions the City will take to deal with the shortages associated with each of the six stages enumerated in Section 5.

6.1 Supply Augmentation

There are currently no supply augmentation actions planned in the City's shortage response actions.

6.2 Demand Reduction

While the WSCP establishes restrictions that are enforceable by penalties and charges, it also establishes methods of reducing consumption, identified in **Table 6-1** below. Typically, these restrictions "should" or "may" be done. Demand reduction methods from prior stages stay in effect when more restrictive stages are enacted.

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	Penalty, Charge, or Other Enforcement?
1	Other	Up to 10%	1. Washing sidewalks, walkways, driveways, parking lots and other hard-surfaced areas by direct hosing is not recommended, unless necessary for public health and safety. 2. Breaks or leaks are recommended to be corrected within 72 hours of discovery or notice from the City. 3. Irrigation in manner that allows excessive runoff of water, or unreasonably over-sprays the area of irrigation, is not recommended. 4. Washing cars, boats, trailers or other vehicles and machinery directly with a hose not equipped with a shutoff nozzle is not recommended. 5. Use of potable water for non-recycling decorative water fountains is not recommended. 6. Use of water for single pass evaporative cooling systems for air conditioning is not recommended for all connections installed after 6 June 2000 unless required for health or safety reasons. 7. Use of water for new, non-recirculating conveyor car wash systems is not recommended. 8. Use of water for new non-recirculating industrial clothes wash systems is not recommended. 9. Restaurants may only serve water upon request. 10. Hotels and lodging establishments offer a linen service opt-out. 11. The irrigation with potable water of ornamental turf on public street medians is not recommended. 12. Irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems is not recommended.	No

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	Penalty, Charge, or Other Enforcement?
2	Other	Up to 20%	1. Voluntary action and measures from Stage 1 are now mandatory. 2. Use of any garden or utility hose without a hose-end shut-off nozzle is prohibited. 3. Irrigation limited to three days per week, and irrigation is limited to the hours between 8pm to 6am. 4. Recycled water must be used for construction dust control. 5. Conduct water use surveys targeting high water users. 6. Car washing shall be allowed only at facilities using recycled or recirculating water. 7. Dedicated irrigation customers are required to conduct the irrigation survey.	Yes
3	Other	Up to 30%	1. Continue with action and measures from Stage 2 except where superseded by more stringent requirements. 2. Irrigation limited to two days per week, and irrigation is limited to the hours between 8pm to 6am. This measure is voluntary under Stage 2 and becomes mandatory under Stage 3. 3. All pools must be covered when not in use.	Yes
4	Other	Up to 40%	1. Continue with action and measures from Stage 3 except where superseded by more stringent requirements. 2. Irrigation limited to two days per week. 3. Filling and/or refilling new and existing decorative water features (i.e. ponds, lakes, and fountains) is prohibited. 4. Filling new swimming pools is prohibited. 4. Filling or topping-off of existing swimming pools is prohibited. 5. Conduct water use surveys targeting high water users. 6. Irrigation limited to one day per week, and irrigation is limited to the hours between 9pm to 6am.	Yes

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	Penalty, Charge, or Other Enforcement?
5	Other	Up to 50%	1. Continue with action and measures from Stage 4 except where superseded by more stringent requirements. 2. Use of potable water for irrigation is prohibited for all customers. 3. All residential and CII customers shall reach a water reduction of forty five percent (45%) from previous use.	Yes
6	Other	Greater than 50%	1. Continue with action and measures from Stage 5 except where superseded by more stringent requirements. 2. No water-using landscape may be installed in new construction. 3. New construction must offset new demand by conserving one times the new demand within the community. 4. No new water-using landscape may be installed by any customer. 5. All residential and CII customers shall reach a water reduction of fifty five percent (55%) from previous use.	Yes
NOTES:				

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	Other	Up to 10%	1. The City implements media campaigns, including: ○ Publicize the water shortage and conservation measures using a media campaign, newspaper articles, and website. ○ Promote water conservation programs. ○ Hold water efficiency workshops and public events. ○ Distribute water bill inserts with information about water shortage and conservation.
2	Other	Up to 20%	1. Continue with action and measures from Stage 1 except where superseded by more stringent requirements. 2. Accelerate leak detection and repair program. 3. Suspend routine flushing of water mains except when necessary to address immediate health or safety concerns or when flushing can be conducted without discharge. 4. Reduce distribution system pressures.
3	Other	Up to 30%	1. Continue with action and measures from Stage 2 except where superseded by more stringent requirements. 2. The City will implement drought rate structure / water budget.
4	Other	Up to 40%	1. Continue with action and measures from Stage 3 except where superseded by more stringent requirements.
5	Other	Up to 50%	1. Continue with action and measures from Stage 4 except where superseded by more stringent requirements.

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)*
6	Other	Greater than 50%	1. Continue with action and measures from Stage 5 except where superseded by more stringent requirements. 2. Increase staff enforcement to ensure customers complying with the assigned water budget.
NOTES:			

6.2.1 Prohibitions on End Uses

Section 13.10.060 of the Municipal Code specifies prohibited water uses, intended to eliminate water waste when a reasonable alternative solution is available. In addition to these mandatory prohibitions, which are in place at all times, the City has incorporated prohibitions against specific water use practices during water shortages. The prohibitions on end uses associated with each Stage of the City's WSCP are summarized in **Table 6-1**.

6.2.2 Defining Water Features

☑ ***CWC § 10632 (b)***

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

As required by CWC Section 10632, the City 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**).

6.3 Operational Changes

The water shortage response actions included in **Table 6-2** include operational changes that the City will implement during each stage of action, including measures to: 1) reduce system losses through a reduction in line flushing and fire training exercises, (2) increase enforcement and patrols, (3) proactive calls to customers, (4) conduct leak surveys during droughts.

6.4 Mandatory Restrictions

The water shortage response actions included in **Table 6-1** include a variety of mandatory customer water use restrictions that will be necessary to achieve the targeted demand reductions for the different shortage stages. The types of restrictions and the manner and degree of enforcement for these restrictions vary by stage and are discussed in Section 8.

6.5 Emergency Response Plan

In accordance with the Emergency Services Act, the City 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 EOP has been coordinated with the SCWA and neighboring water purveyors. The following table provides a summary of the actions included in the EOP for specific catastrophic effects.

Table 6-3 summarizes some of the actions in the event of specific catastrophic events.

Table 6-3 Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Earthquake	Shut-off isolation valves and use spare piping for ruptured mains
	Storage supplies for service interruption
	Portable and emergency generators available for City facilities
	Procedures for assessing water quality, notifying public and disinfecting system
Flooding	Portable and emergency generators available for City facilities
	Storage supplies for service interruption
	Procedures for assessing water quality, notifying public and disinfecting system
Toxic Spills (interrupts SCWA Supply)	Use of local groundwater
	Procedures for assessing water quality, notifying public and disinfecting system
Fire	Storage supplies for fire flows
	Mutual aid plans and responders identified
	Portable and emergency generators available for City facilities
Power outage or grid failure	Portable and emergency generators available for City facilities
Severe Winter Storms	Portable and emergency generators available for City facilities
Hot Weather	Portable and emergency generators available for City facilities
NOTES:	

6.6 Seismic Risk Assessment and Mitigation Plan

☑ ***CWC § 10632.5***

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

Impacts associated with earthquakes and liquefaction are discussed in the *2016 Sonoma County Operational Area Hazard Mitigation Plan* (County LHMP; Sonoma County, 2017).[1] The County LHMP assesses Sonoma County's vulnerabilities to various hazards, including seismic hazards, and presents mitigation strategies that are planned over the next five years. The City was a participating member of this plan, and the City is also currently updating its LHMP as an annex to the County LHMP that is under development.

The County LHMP includes a discussion of the probability of a seismic event on various faults in the San Francisco Bay Region and concludes that there is a 72 percent chance of one or more earthquakes of magnitude 6.7 of greater on one of the San Francisco Bay Area faults during the next 30 years. The County LHMP indicates that an earthquake occurring on either the Rodgers Creek or Northern San Andreas fault systems would affect large numbers of people and would result in serious damage to buildings, facilities, and infrastructure. Although the San Andreas Fault has potential for a larger magnitude quake, a major quake on the Rodgers Creek fault has the greatest potential for damage and injury in Sonoma County because the fault is in closer proximity to County population centers along the Highway 101 corridor.

The County examines the exposure and vulnerability of various County assets to earthquake risk. Under a scenario of an earthquake on the Rodgers Creek fault of magnitude 7.3, the resulting capital stock losses were projected to be $2.921 trillion.

Measures to mitigate seismic risk identified in the County LHMP include:

- Adopting an ordinance requiring strengthening and/or reinforcement of unreinforced masonry buildings;
- Conducting seismic upgrades to County buildings to increase resistance to earthquake damage;
- Requesting a vulnerability report from PG&E on gas pipelines in Sonoma County;
- Assessment of the vulnerability of critical County infrastructure;
- Performing seismic retrofitting or replacement of selected County-owned bridges;

[1] The County LHMP could be found in the following website: https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/Hazard-Mitigation/Approved-Update/.

- Continuing and expanding structural retrofit mitigation activities carried out under the existing Earthquake Resistant Bracing Systems Program.
- Adopting pre-approved standard plans for seismic retrofits of existing residences;
- Providing materials to educate and inform owners of the greater risks associated with certain building types;
- Developing a strategic plan for damage assessment and recovery of essential public facilities following earthquakes; and
- Seeking funding to engage an engineering consult to conduct a seismic evaluation of facilities critical to emergency response or recovery operations.

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). 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 City also assessed the risks of an earthquake to the City's water supply system and infrastructure in the Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan Taming Natural Disasters (Sonoma, 2011).[2] This plan identifies that the City may be impacted by earthquakes, with the resulting potential hazards including shaking, earthquake-induced landslides, and liquefaction. The plan also identifies a series of mitigation measures to address seismic risk, including hosting an event, "Big Rumble", which included a community-wide earthquake preparedness drill and upgrading of the City's infrastructures, such as specially-engineered pipelines and earthquake-resistant connections. More detail regarding the earthquake risk assessment and modelling can be found in the Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan Taming Natural Disasters.

6.7 Shortage Response Action Effectiveness

In order to evaluate and ensure that effective actions will be implemented with the proper level of intensity, the City employed the Drought Response Tool (DRT), an Excel spreadsheet model developed by EKI Environment and Water, Inc. The DRT model calculates monthly savings anticipated by implementing each stage of action as detailed below.

6.7.1 Baseline Water Use Profile

Using the DRT, the City developed a pre-drought baseline water use profile that reflected usage patterns within the City's service area by major water use sector during 2019 that was used to guide development of the WSCP. Key findings from this analysis are presented below.

[2] The City's LHMP could be found in the following website: https://abag.ca.gov/sites/default/files/sonoma-annex-2011.pdf.

Residential Per Capita Demand

The City's baseline residential gallons per capita per day (R-GPCD) demand during 2019 was approximately 101 R-GPCD. As shown in **Table 6-4**, this R-GPCD is significantly greater than the statewide average of 85 R-GPCD.

Proportion of Outdoor Water Use

As shown in **Table 6-4** and associated charts, outdoor water use, which can generally be considered as a "discretionary water use", was estimated to be approximately 45 percent of the City's potable consumption during this pre-drought time period. Dedicated irrigation meters for potable water accounted for 6 percent of the total potable irrigation demand. The remaining irrigation water uses within the City's service area are supplied by recycled water.

The DRT estimates indoor water use to be equivalent to the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use. If City customers tend to irrigate more heavily during winter months, an underestimation of the proportion of outdoor water use would occur.

The proportion of outdoor water use within the residential and commercial sectors are estimated to be 56 percent and 31 percent, respectively. This indicates that there is the potential to achieve significant potable water savings across these sectors, simply by focusing on outdoor uses. If the proportion of outdoor water use is being underestimated by the DRT method, then even more substantial savings may be achieved through targeting outdoor water use. As further shown in **Table 6-5** and its associated charts, the seasonal variation in baseline potable water use reflects increased irrigation demands during the summer and fall months. Therefore, the greatest potential for reductions in non-essential water use are expected during these months.

Table 6-4 Baseline Residential Per Capita Water Demand

	Baseline Residential Per Capita Water Demand (R-GPCD)
Sonoma (a)	100
Statewide Average (c)	85
NOTES: (a) Sonoma R-GPCD calculated using 2019 metered data. (b) State-wide R-GPCD for 2019 obtained from data provided at California State Water Resources Control Board Water Conservation Portal - Conservation Reporting, http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml, accessed March 2021.	

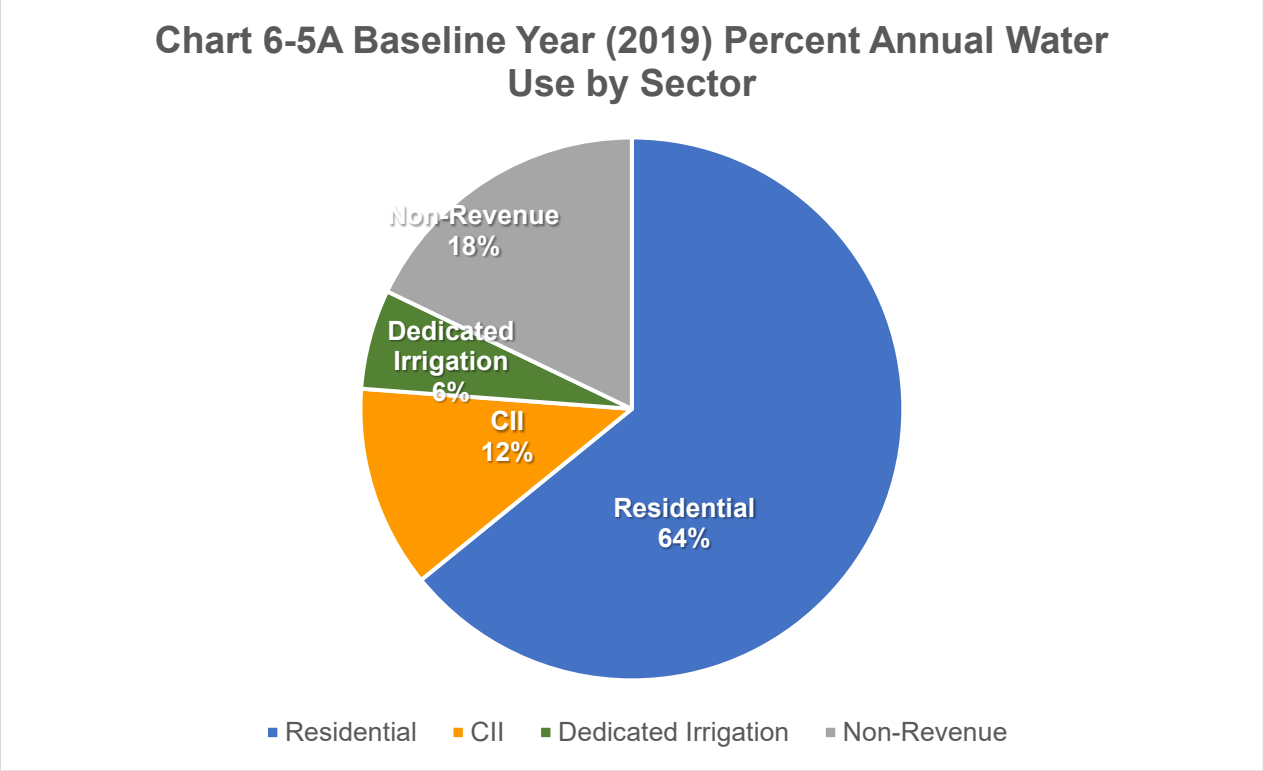


Chart 6-5A Baseline Year (2019) Percent Annual Water Use by Sector
Non-Revenue 18%
Dedicated Irrigation 6%
CII 12%
Residential 64%
Residential
CII
Dedicated Irrigation
Non-Revenue

Chart 6-5B Baseline Year (2019) Annual Water Use by Sector and End Use

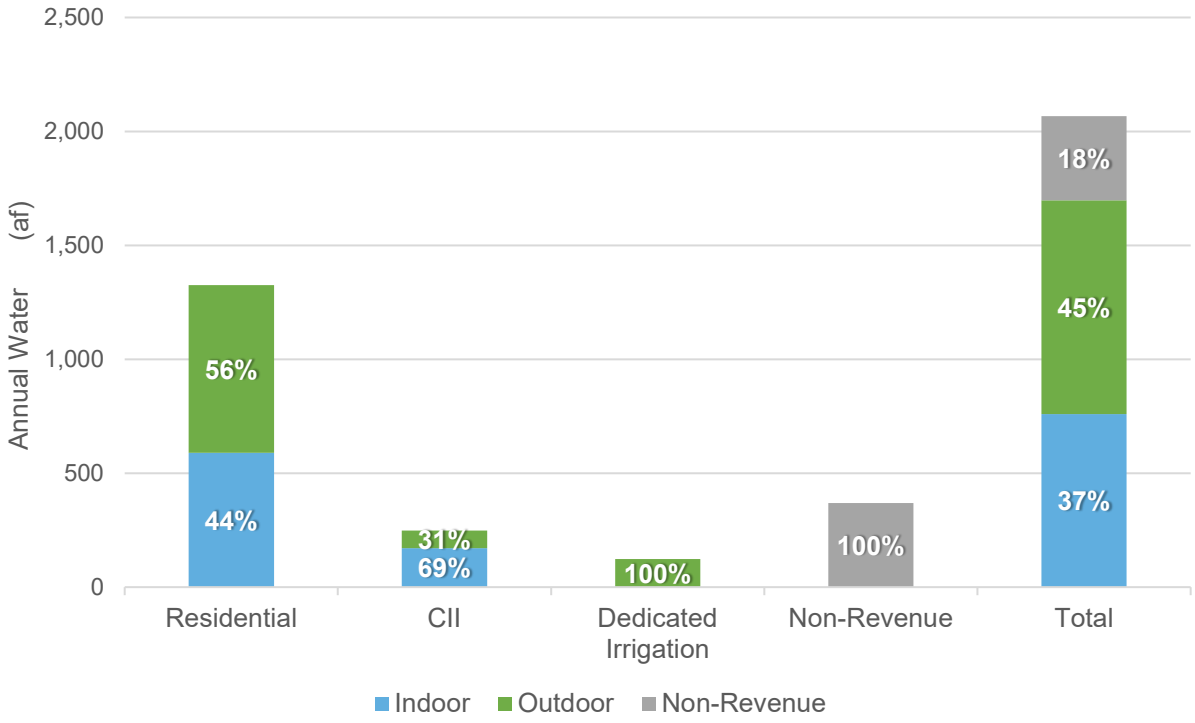


Table 6-5 Baseline Water Use Profile

Sector	End-Use	Baseline (2019) Water Use													Annual % of Total by Sector
		January	February	March	April	May	June	July	August	September	October	November	December	Annual	
Residential	Indoor	50	45	50	48	50	48	50	50	48	50	48	50	589	29%
	Outdoor	9	7	0	35	70	91	116	130	98	108	61	10	736	35%
	Subtotal Residential	59	52	50	84	120	140	166	180	147	158	109	60	1,326	64%
CII	Indoor	15	13	15	14	15	14	15	15	14	15	14	15	171	8%
	Outdoor	2	1	0	6	8	9	11	14	9	12	6	1	78	4%
	Subtotal CII	17	14	15	20	22	23	26	28	23	26	20	16	249	12%
Dedicated Irrigation	Outdoor	2	3	1	4	13	14	19	22	18	16	9	2	123	6%
Non-Revenue	Non-Revenue	12	14	32	2	20	7	72	2	53	47	57	51	369	18%
Total	Indoor	65	58	65	62	65	62	65	65	62	65	62	65	760	37%
	Outdoor	13	11	1	45	90	114	146	166	125	136	76	13	937	45%
	Non-Revenue	12	14	32	2	20	7	72	2	53	47	57	51	369	18%
	Total	89	83	98	109	175	184	283	233	240	248	196	128	2,067	100%

NOTES:
(a) Volumes are in units of AF.
(b) Indoor water use was estimated to be the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use.

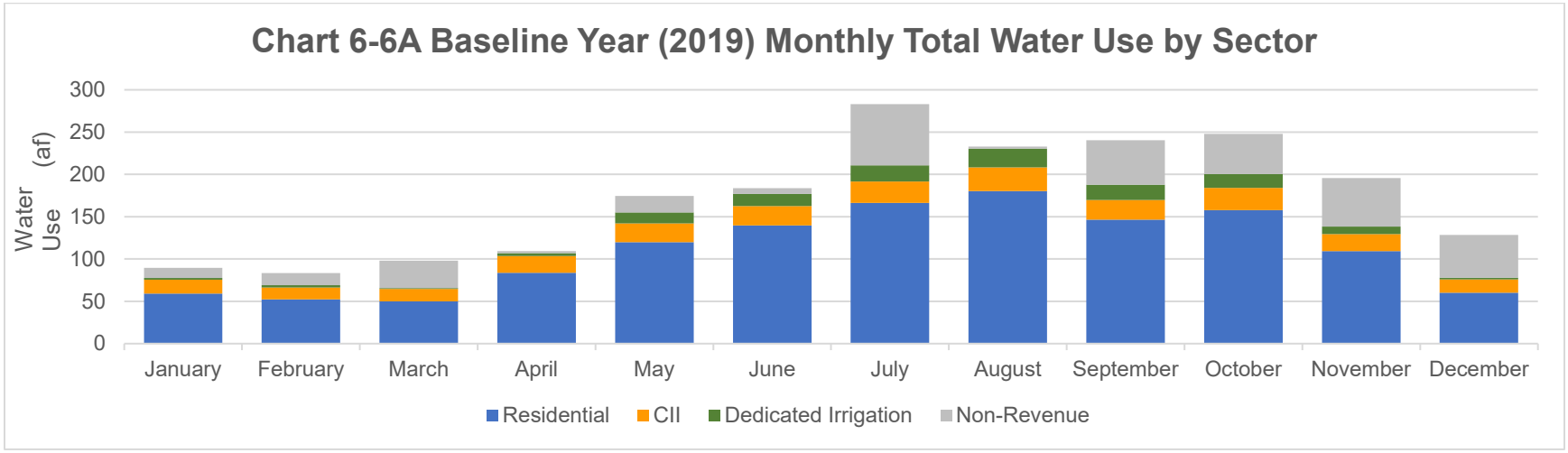


Chart 6-6A Baseline Year (2019) Monthly Total Water Use by Sector
Water Use (af)
300
250
200
150
100
50
0
January
February
March
April
May
June
July
August
September
October
November
December
Residential
CII
Dedicated Irrigation
Non-Revenue

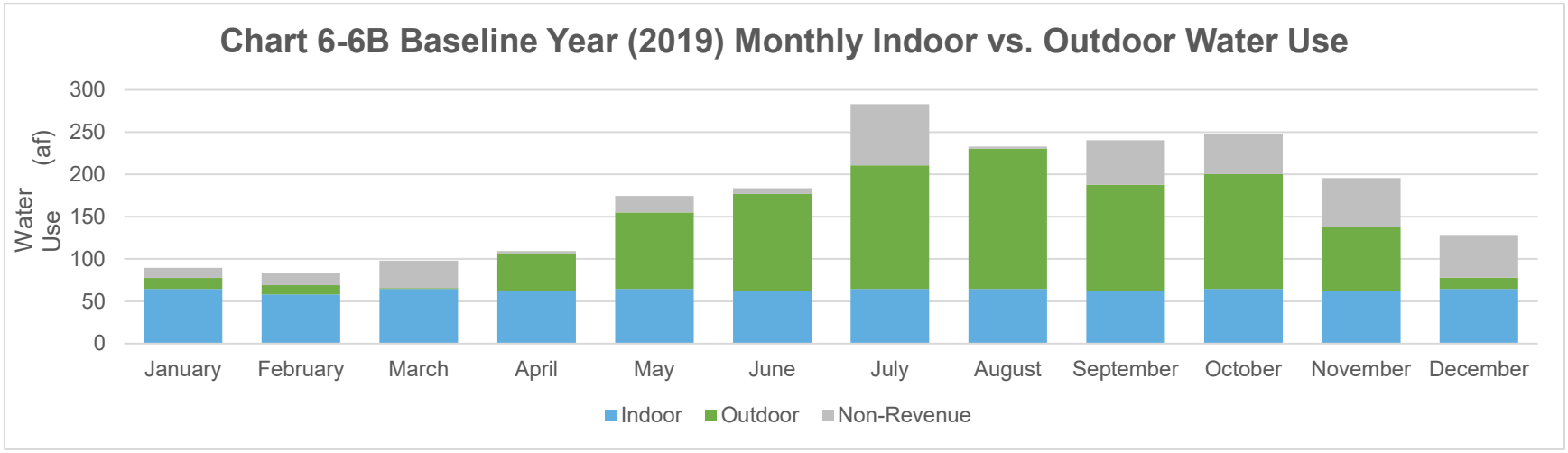


Chart 6-6B Baseline Year (2019) Monthly Indoor vs. Outdoor Water Use
Water Use (af)
300
250
200
150
100
50
0
January
February
March
April
May
June
July
August
September
October
November
December
Indoor
Outdoor
Non-Revenue

6.7.2 Shortage Response Action Effectiveness

The DRT provides a quantitative framework that allows the City to systematically estimate the monthly and cumulative annual demand reductions expected to result from particular combinations of drought response actions and associated implementation rates. Data inputs to the DRT include total production, class-specific water use, population, and assumptions regarding the split between indoor and outdoor water use for each customer class.

For each drought response action, the user specifies:

- The customer class(es) and end use(s) that are affected;
- The percent savings for that end use for each account that implements the action. These are based on evaluations reported in the literature, or where such studies are not available, on best estimates based on the City's experience; and
- The percentage of accounts assumed to implement the action, which is presumed to be the result of the intensity level of the City's program implementation, including but not limited to, marketing and enforcement activities.

An additional critical DRT user input is a set of constraints on demand reductions to ensure that usage levels do not endanger health and safety or result in unacceptable economic impacts. The DRT will not permit estimated usage reductions to violate these constraints, regardless of the demand reduction actions selected. The constraints are:

- A minimum residential indoor per capita daily usage of 25 gallons,
- A maximum residential outdoor usage reduction of 100 percent,
- A maximum Commercial, industrial, and institutional (CII) indoor usage reduction of 30 percent, and
- A maximum CII outdoor usage reduction of 100 percent.

Based on the foregoing data, the DRT model calculates the resulting monthly savings. The City adjusted the combination of actions and implementation levels to achieve the targeted savings levels at each of the six stages of action.

For each stage of action, the modeling targeted the mid-range of the required demand reduction range, ergo:

- 5 percent for Stage 1,
- 15 percent for Stage 2,
- 25 percent for Stage 3,
- 35 percent for Stage 4,
- 45 percent for Stage 5, and
- 55 percent for Stage 6.

The key DRT inputs and outputs for each of the stages of action are reproduced in **Attachment 2.**

Table 6-1 shows the water shortage reduction actions, savings assumptions, and implementation rates that are required for the City to achieve the required annual demand reductions for each of the six stages of action. At each stage, there are two types of demand-reduction actions identified:

- Restrictions on customer water usage; and
- Consumption reduction actions by the City to encourage decreased water usage.

Many actions are implemented across a number of stages, some at increasing implementation levels. Therefore, the actions in **Table 6-2** and **Table 6-1** are listed as a row under the first stage at which they are implemented. The percentages shown in the tables represent savings of the end uses.

7 COMMUNICATION PROTOCOLS

☑ ***CWC § 10632 (a) (5)***

Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

Each stage of the WSCP is implemented with a formal declaration by City Council 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.

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, City customers would need to be provided notice of water shortage rules and regulations via a variety of media and communications methods.

Coordination between the City and with other public agencies can 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 City would use public outreach resources and materials provided by SCWA. In addition to these materials, the City may develop its own materials to communicate with customers, such as a dedicated customer service hotline, and expand its normal public outreach to support its water conservation efforts (see Chapter 9 of the City's 2020 UWMP).

As discussed in Chapter 9 of the 2020 UWMP, one City staff member jointly shares the responsibility for water conservation. 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.

In summary, the general steps involved in the communication include the following:

- If a water shortage is anticipated based on the preliminary evaluations performed for the Annual Assessment described in Section 5, the City will initiate a public information program, providing customers with notice of anticipated water shortage rules and regulations.
- At this time, the City will commence coordination other public agencies via regular meetings, e-mail group updates, and presentations.
- Any change in stage of the WSCP will be implemented by a formal declaration by the City Council. The City will post declarations on its website and other multi-media outlets as feasible.

8 COMPLIANCE AND ENFORCEMENT

☑ ***CWC § 10632 (a) (6)*** *For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.*

In the event of demand reduction stage 1-6 violations to the City's respective stage water waste prohibitions and requirements, non-essential user/actions, and/or allocation reduction, the City follows the following sequence:

(1) written notice of infraction or administrative penalties; and

(2) flow restricting devices or water shutoff (as consistent with current regulations).

Administrative penalties shall be $100 for first violation, $200 for second violation, and $300 for third or subsequent violations.

9 LEGAL AUTHORITIES

☑ ***CWC § 10632 (a) (7)***

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

Under California law, including CWC Chapters 3.3 and 3.5 of Division 1, Parts 2.55 and 2.6 of Division 6, Division 13, and Article X, Section 2 of the California Constitution, the City Council is authorized to implement the water shortage actions outlined in this WSCP. In all water shortage cases, shortage response actions to be implemented will be at the discretion of the City Council and will be based on an assessment of the supply shortage, customer response, and need for demand reductions.

It is noted that upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 [commencing with Section 8550] of Division 1 of Title 2 of the Government Code) based on drought conditions, the state will defer to implementation of locally adopted water shortage contingency plans to the extent practicable. The City will coordinate with Sonoma County within which it provided water supply services as well as other regional and local water suppliers for possible proclamation of a local emergency, as necessary. The City shall declare a water shortage emergency in accordance with Water Code Chapter 3 (commencing with Section 350) of Division 1 general provision regarding water shortage emergencies.

The City has authority under Chapter 13.10 of the Sonoma Municipal Code to require water rationing and conservation and to enforce penalties. Relevant code sections and an adopted water shortage contingency resolution are included as **Attachment 3** of this WSCP.

The City's WSCP update was adopted on XX 2021. The adoption ordinance is included as **Attachment 3** of the City's UWMP.

10 FINANCIAL CONSEQUENCES OF WSCP

☑ ***CWC § 10632 (a) (8)***

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

The greater the water shortage stage enacted, the greater the financial impacts to the City of Sonoma due to reduced revenue from water sales. This reduced revenue would be balanced to some degree due to a commensurate reduction in costs to purchase a reduced volume of water from the SCWA. In addition, the City would have the option of deferring planned capital expenditures and utilizing its utility system reserves. To further offset these impacts, the City may enact drought rate structures and surcharges as described below and meet remaining financial shortfalls through the use of reserves.

10.1 Drought Rate Structures and Surcharges

Well-designed drought rate structures can reduce the potential financial effects of water shortages and enable the supplier to recover its purchase, treatment, and delivery costs, as well as the additional costs related to the water shortage response program.

In order to understand the potential impacts of supply reduction on revenues and expenditures, the City has analyzed the effects of 20, 30, and 50 percent reductions in water delivered. The City's current water rate structure includes a monthly service charge and a commodity charge. Commodity charges are tiered for residential, multi-family, and commercial accounts.

Reductions in water use will affect the revenue that the City receives from its commodity charges, because less water will be sold. The anticipated revenue from commodity charges can be calculated by subtracting the revenue generated from monthly service charges from the total budgeted revenue.

The City is considering adopting a water shortage drought surcharge to address declining revenues during droughts and prolonged water shortages.

10.2 Use of Financial Reserves

The City has a Water Utility Fund Rate Stabilization Reserve that is to be used during periods of short-term revenue shortages due to economic recession, drought, or other causes, to alleviate the need to quickly implement substantial rate increases. Beginning in Fiscal Year 2018-2019, the Water Utility Rate Stabilization Reserve target level was 11 percent of annual Volumetric Charge revenue. The Water Utility Rate Stabilization Reserve will be increased by 1 percent every year, until it reaches a targeted 15 percent of annual Volumetric Charge revenue. Use of the Water Utility Fund Rate Stabilization Reserve can be

during periods of short-term revenue shortages caused by economic recession, drought, or other reasons, by direction of City Council.

11 MONITORING AND REPORTING

☑ ***CWC § 10632 (a) (9)*** *For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.*

The City's local groundwater 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 City reads meters on a monthly basis and is able to document both demand reductions and atypically high water use. The City contacts individual customers to resolve issues related to atypically high water use.

The SCWA is in the process of converting billing (turnout) meters to automatic read technology that will result in 24-hour daily flow measurement. The City has plans to convert meters to automatic read technology as well.

12 WSCP REFINEMENT PROCEDURES

☑ ***CWC § 10632 (a) (10)*** *Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.*

As part of the Annual Assessment, the City staff will review the results of prior monitoring and reporting to determine the effectiveness of the WSCP. In addition, the City will consult with other SCWA contractors and SCWA directly. If modifications to shortage response actions are needed, the City team will present the proposed modifications to the City Council and request changes to the WSCP by resolution.

The WSCP is implemented as an adaptive management plan. The City will evaluate the need for revise its WSCP every year after performing its Annual Assessment. The evaluation will consider effective of WSCP actions and any anticipated water supply shortages assessed by the Annual Assessment. If the WSCP is revised, the City Council will adopt a new resolution adopting the revised WSCP, and if necessary, declare a water shortage level to implement.

13 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

☑ ***CWC § 10632 (c)*** *The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.*

As described in Chapter 10 of the City's UWMP, the City informed the public and the appropriate agencies of: (1) its intent to prepare a WSCP, (2) where the WSCP was available for public review, and (3) when the public hearing regarding the WSCP would be held. All notifications were completed in compliance with the stipulations of Section 6066 of the Government Code.

A copy of the adopted 2020 WSCP including any amendments will be provided to the Department of Water Resources (DWR), the California State Library, and Sonoma County within 30 days of the adoption (**Attachment 3**). An electronic copy of the adopted 2020 WSCP will be submitted to the DWR using the DWR online submittal tool.

A copy of the adopted 2020 WSCP will be available for public review on the City's website within 30 days after filing the plan with DWR.

ATTACHMENT 1

SONOMA COUNTY WATER AGENCY ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Annual Water Supply and Demand Assessment Procedures

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 (12 months) 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 year and one subsequent dry year. The following subsections describe the decision-making process and data and methodologies. Sonoma Water may modify this procedure based on its experiences that it will gain from the development of 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. The assessment will be conducted annually and completed by July 1. Sonoma Water will conduct an annual assessment that follows the steps described below.

1. **Develop draft annual assessment.** Sonoma Water staff will compile the draft annual assessment. The draft annual assessment will document the evaluation of water supply conditions, considering projections of the demand for Sonoma Water provided by the customers by February 1. Sonoma Water staff will start conducting the assessment prior to the January Decision 1610 trigger point and then thereafter at the middle of each month prior to the trigger point at the beginning of each month through June. Decision 1610 is described later in this assessment procedure description.
2. **Submit draft annual assessment report to the customers.** The draft annual assessment will be submitted and presented to the TAC ad-hoc committee at the April meeting. An initial determination will be made regarding the potential for a water shortage condition to occur.
3. **Receive review comments.** The customers will present their review comments including their updated demands and local supply projections at the May TAC meeting.
4. **Submit final annual assessment to the TAC.** The final annual assessment will be submitted and presented at the June TAC meeting. The annual assessment may be presented to the WAC. Sonoma Water will coordinate with the customers to identify if any water supply gaps exist for each customer when considering both Sonoma Water supplies and local supplies.
5. **Optional presentation of the annual assessment to the Board of Directors.** The annual assessment may be included in the agenda for Sonoma Water's Board of Directors regular meeting, particularly if a shortage is anticipated or if an existing shortage condition is to be ended.
6. **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	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Develop draft assessment												
Submit draft annual assessment to the customers												
Receive review comments												
Submit final annual assessment to the TAC and WAC												
Present annual assessment to the Board of Directors												
Submit annual assessment to DWR												

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. Evaluation criteria are determined by the supply source conditions and factors that impact the condition of each supply source. The criteria 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 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 cumulative inflows and storage levels, and soil moisture and snowpack.
- **Potter Valley Project inflows.** Lake Pillsbury storage levels and observed and projected project transfers. Decision 1610 contains trigger points at the first of each month from January to June to establish a hydrologic index based on cumulative inflows into Lake Pillsbury on the Eel River.

Sonoma Water's Russian River water supply is controlled and influenced by a variety of agreements and decisions. There are several constraints, requirements, and restrictions on water supply that will be considered as part of the assessment of the available water supplies, as follows.

- **Lake Sonoma storage level.** Minimum 100,000 ac-ft Lake Sonoma storage level and 30 percent delivery deficiency. This key constraint is described later in this section.

- **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.
- **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. Minimum instream flow requirements for the Russian River and Dry Creek are met by releases from Coyote Valley Dam and Warm Springs Dam.
- **Maximum flow releases from Warm Springs and Coyote Valley Dams.**
- **US Army Corps of Engineers' flood control operations criteria.**
- **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.

Sonoma Water's water rights permits include a provision that requires Sonoma Water to impose a 30 percent deficiency in deliveries from the Russian River to its service area when Lake Sonoma storage levels drop below 100,000 ac-ft before July 15 of any year. This deficiency must remain in effect until "(1) storage in Lake Sonoma rises to greater than 70,000 ac-ft subsequent to December 31 after having fallen below that level, or (2) permittee has projected, to the satisfaction of the Chief, Division of Water Rights, that storage at Lake Sonoma will not fall below 70,000 ac-ft, or (3) hydrologic conditions result in sufficient flow to satisfy permittee's demands at Wohler and Mirabel Park and minimum flow requirements in the Russian River at Guerneville."

Water Supply. This subsection provides a brief overview of Sonoma Water's supply sources. These water supply sources will be described, and estimates made of the availability of supplies in the annual assessment. Sonoma Water's most recent Urban Water Management Plan provides a more detailed description of the water supplies.

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. The surface water is subject to varying quantities of available supply based on hydrologic conditions and sometimes regulatory restrictions.

Almost all of Sonoma Water's 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.

Two federal projects impound water in the Russian River watershed: the Coyote Valley Dam on the Russian River east of the City of Ukiah in Mendocino County (forming Lake Mendocino), and the Warm Springs Dam on Dry Creek (a tributary of the Russian River). The Potter Valley Project diverts water from the Eel River into the Russian River watershed.

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.

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 year as well as how the supplies will be used, while anticipating that the following 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 year water supply.** The available water supply from all water supply sources will be estimated for the current year based on the data inputs, evaluation criteria, and hydrological and regulatory conditions in the current year. Sonoma Water staff will evaluate water supply conditions beginning at least mid-month prior to each of the January to June Decision 1610 trigger dates to determine whether anticipated conditions at the trigger dates warrant any actions by Sonoma Water. 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 year supply.** The subsequent year water supplies will be estimated by assuming a dry year. Sonoma Water may base the estimate of dry year water supplies on the historical hydrologic record or some other approach.
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.
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 Lakes Mendocino and 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. The forecast will be coordinated with the customers. Depending on the extent of the forecast shortage, the appropriate shortage stage will be selected. If 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. **Extent of water shortage.** The water shortage may be caused by the requirement to reduce supplies by 30 percent based on the Lake Sonoma level. Sonoma Water may request voluntary reductions and perhaps mandatory reductions before Lake Sonoma levels reached 100,000 ac-ft by July 15in 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 will be used to allocate the reduced supply to each customer. Each of Sonoma Water's customers will 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.

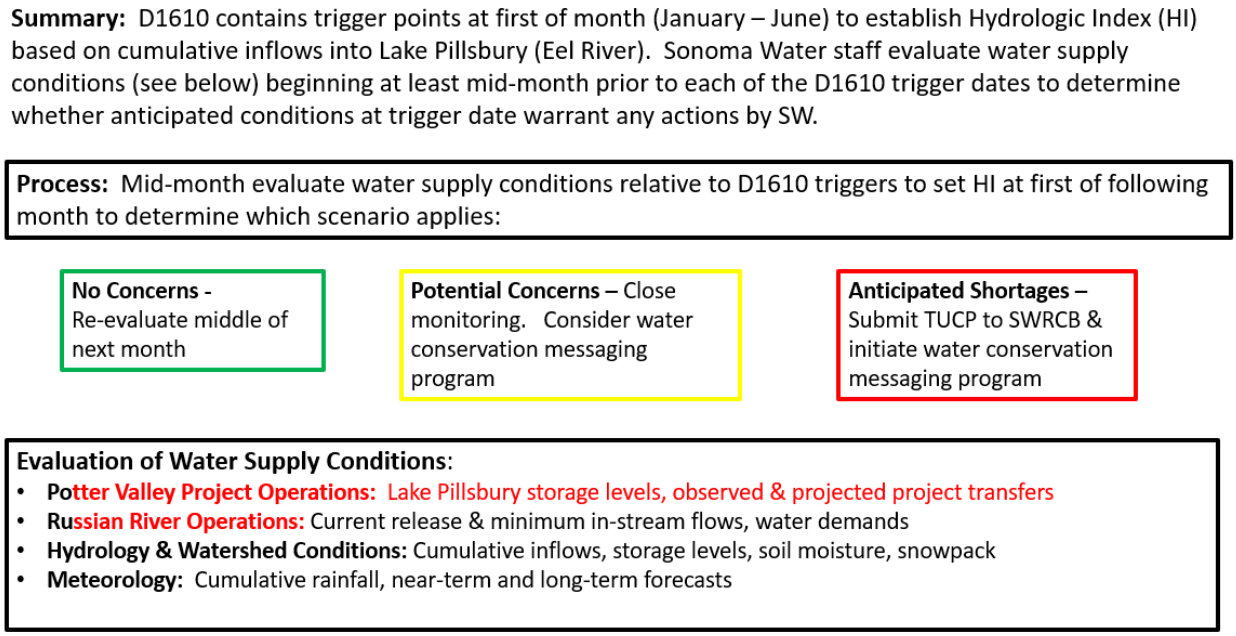


Figure 1. Assessment of Russian River Water Supply Conditions

ATTACHMENT 2

DROUGHT RESPONSE TOOL QUANTITATIVE ASSESSMENT

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

Enter Agency Information	
Agency Name	City of Sonoma
Total Population Served	11,764
Conservation Goal (%)	5%
Drought Stage	Stage 1
Number of Residential Accounts	3,828
Number of Commercial, Industrial, and Institutional (CII) Accounts	293
Number of Dedicated Irrigation Accounts	76
Baseline Year(s)	2019
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

Disclaimer: *This electronic file is being provided by EKI Environment & Water Inc. (EKI; fomerly Erler & Kalinowski, Inc.) at the request of (CLIENT). The Drought Response Tool was transmitted to CLIENT in electronic format, on a CD dated [DATE] (Original Document). Only the Original Document, provided to, and for the sole benefit of, CLIENT constitutes EKI's professional work product. An electronic copy of the Drought Response Tool is provided to CLIENT's Customer Agencies, for use only by CLIENT-designated Customer Agencies. The Drought Response Tool is copyrighted by EKI. All rights are reserved by EKI, and content may not be reproduced, downloaded, disseminated, published, or transferred in any form or by any means, except with the prior written permission of EKI. Customer Agencies may use the Drought Response Tool for reviewing potential drought response alternatives. The delivery to, or use by, Customer Agencies of the Drought Response Tool does not provide rights of reliance by Client Agencies or other third parties without the express written consent of EKI and subject to the execution of an agreement between such Customer Agency or other third party and EKI. EKI makes no warranties, either express or implied, of the electronic media or regarding its merchantability, applicability, compatibility with the recipients' computer equipment or software; of the fitness for any particular purpose; or that the electronic media contains no defect or is virus free. Use of EKI's Drought Response Tool, other electronic media, or other work product by Client Agency or others shall be at the party's sole risk. Further, by use of this electronic media, the user agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless EKI, CLIENT, and their officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any use, modification or changes made to the electronic files by anyone other than EKI or from any unauthorized distribution or reuse of the electronic files without the prior written consent of EKI.*

2 - Input Baseline Year (2019) Water Use

City of Sonoma

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
January	89	59	17	2	12	53	Total production from 2019 DWR report
February	83	52	14	3	14	52	
March	98	50	15	1	32	45	
April	109	84	20	4	2	77	
May	175	120	22	13	20	107	
June	184	140	23	14	7	129	
July	283	166	26	19	72	148	
August	233	180	28	22	2	161	
September	240	147	23	18	53	135	
October	248	158	26	16	47	141	
November	196	109	20	9	57	101	
December	128	60	16	2	51	54	

3 - Baseline Year (2019) Water Use Profile

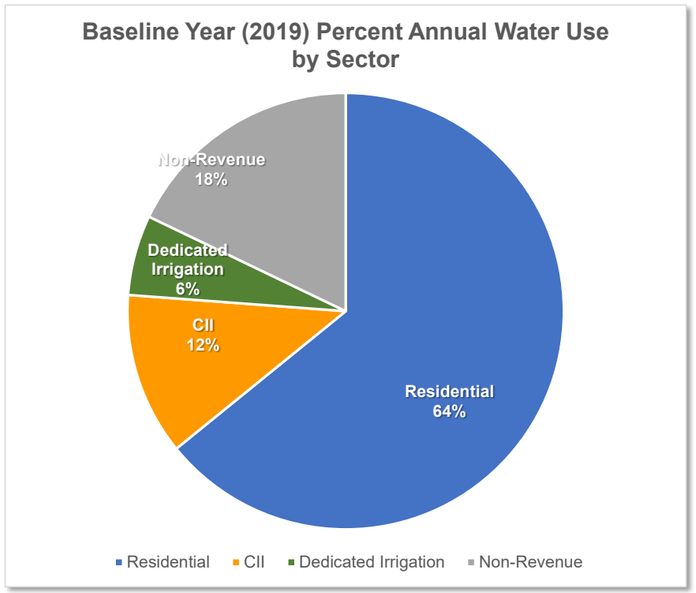
City of Sonoma

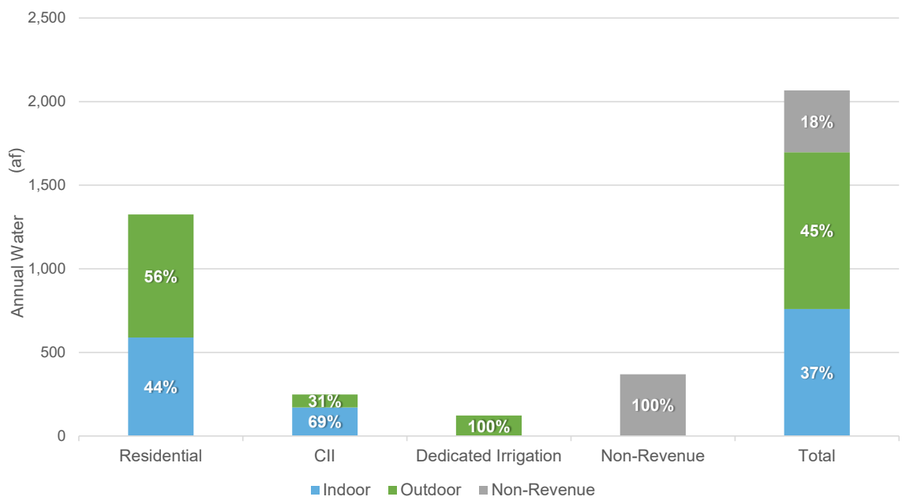
Baseline Year (2019) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

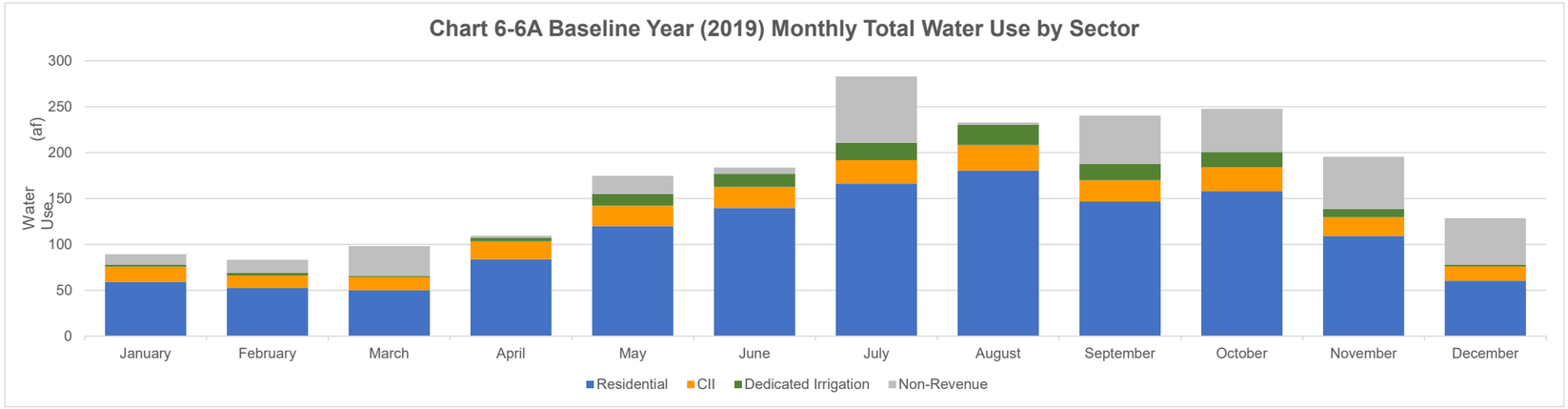
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	2,067	1,326	249	123	369	
Total Indoor	760	589	171	--	--	
Total Outdoor	937	736	78	123	--	
Total Non-Revenue	369	--	--	--	369	
Total Indoor %	37%	44%	69%	0%	--	
Total Outdoor %	45%	56%	31%	100%	--	
Total Non-Revenue %	18%	--	--	--	100%	

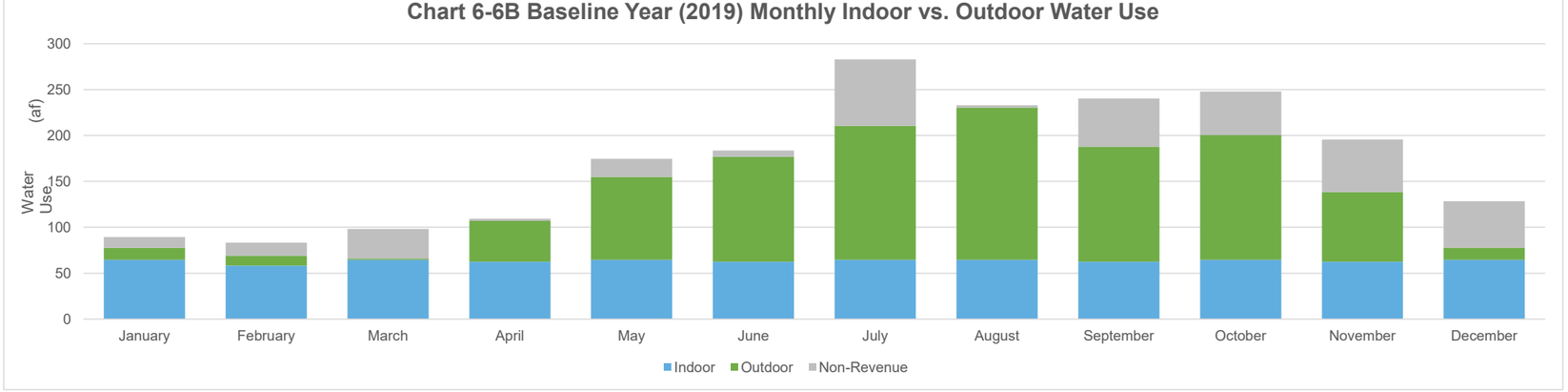




3 - Baseline Year (2019) Water Use Profile

City of Sonoma



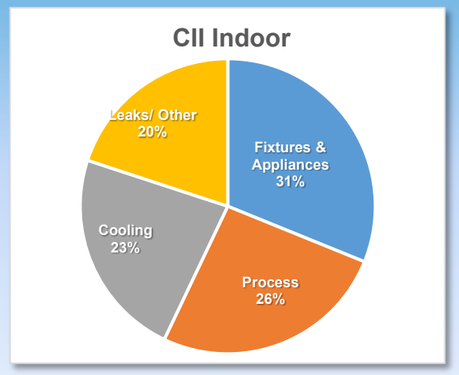


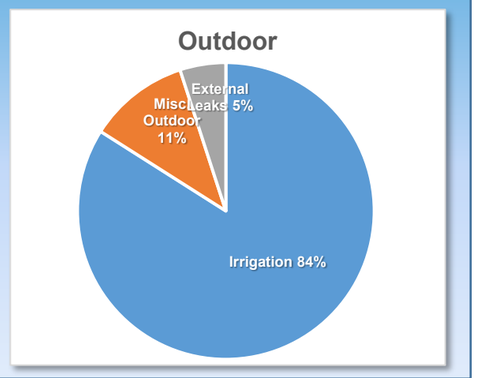
4 - Drought Response Actions - Stage 1

City of Sonoma

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**69%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 1

City of Sonoma

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions - Stage 1

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☐	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 1

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 1

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 1

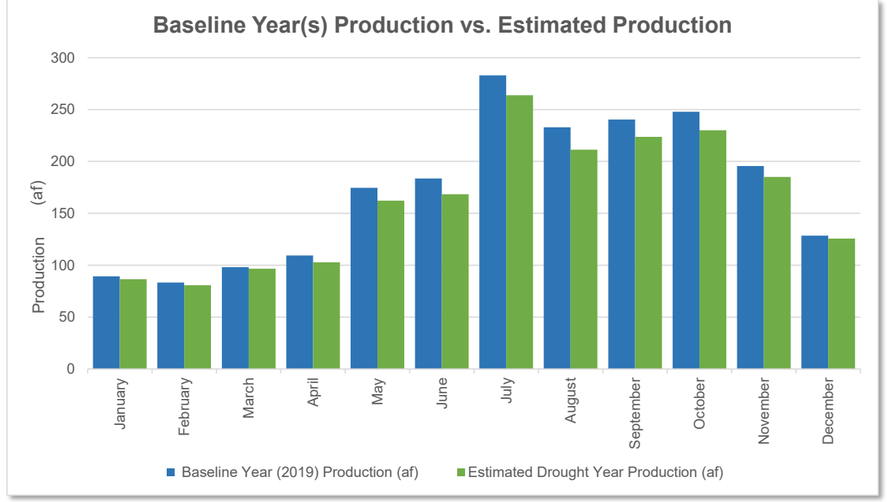
City of Sonoma

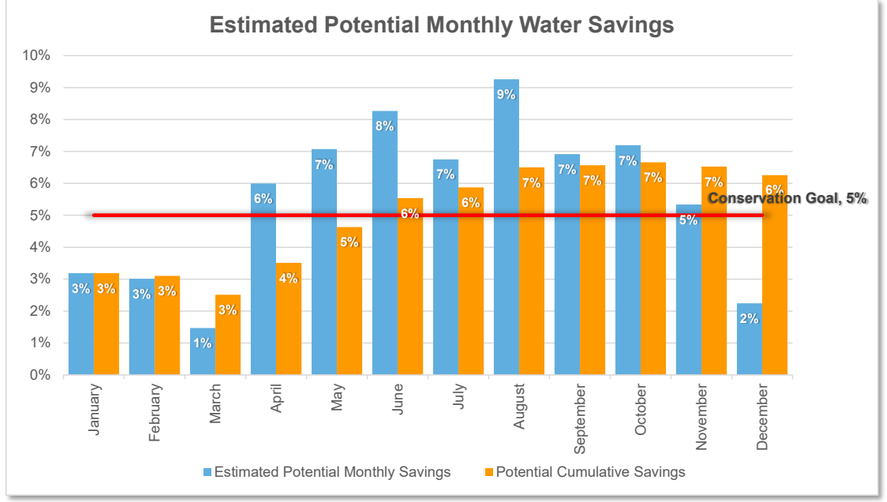
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	89	87	3%	3%	5%	
February	83	81	3%	3%	5%	
March	98	97	1%	3%	5%	
April	109	103	6%	4%	5%	
May	175	162	7%	5%	5%	
June	184	168	8%	6%	5%	
July	283	264	7%	6%	5%	
August	233	211	9%	7%	5%	
September	240	224	7%	7%	5%	
October	248	230	7%	7%	5%	
November	196	185	5%	7%	5%	
December	128	126	2%	6%	5%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

Enter Agency Information	
Agency Name	City of Sonoma
Total Population Served	11,764
Conservation Goal (%)	15%
Drought Stage	Stage 2
Number of Residential Accounts	3,828
Number of Commercial, Industrial, and Institutional (CII) Accounts	293
Number of Dedicated Irrigation Accounts	76
Baseline Year(s)	2019
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

Disclaimer: *This electronic file is being provided by EKI Environment & Water Inc. (EKI; fomerly Erler & Kalinowski, Inc.) at the request of (CLIENT). The Drought Response Tool was transmitted to CLIENT in electronic format, on a CD dated [DATE] (Original Document). Only the Original Document, provided to, and for the sole benefit of, CLIENT constitutes EKI's professional work product. An electronic copy of the Drought Response Tool is provided to CLIENT's Customer Agencies, for use only by CLIENT-designated Customer Agencies. The Drought Response Tool is copyrighted by EKI. All rights are reserved by EKI, and content may not be reproduced, downloaded, disseminated, published, or transferred in any form or by any means, except with the prior written permission of EKI. Customer Agencies may use the Drought Response Tool for reviewing potential drought response alternatives. The delivery to, or use by, Customer Agencies of the Drought Response Tool does not provide rights of reliance by Client Agencies or other third parties without the express written consent of EKI and subject to the execution of an agreement between such Customer Agency or other third party and EKI. EKI makes no warranties, either express or implied, of the electronic media or regarding its merchantability, applicability, compatibility with the recipients' computer equipment or software; of the fitness for any particular purpose; or that the electronic media contains no defect or is virus free. Use of EKI's Drought Response Tool, other electronic media, or other work product by Client Agency or others shall be at the party's sole risk. Further, by use of this electronic media, the user agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless EKI, CLIENT, and their officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any use, modification or changes made to the electronic files by anyone other than EKI or from any unauthorized distribution or reuse of the electronic files without the prior written consent of EKI.*

2 - Input Baseline Year (2019) Water Use

City of Sonoma

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
January	89	59	17	2	12	53	Total production from 2019 DWR report
February	83	52	14	3	14	52	
March	98	50	15	1	32	45	
April	109	84	20	4	2	77	
May	175	120	22	13	20	107	
June	184	140	23	14	7	129	
July	283	166	26	19	72	148	
August	233	180	28	22	2	161	
September	240	147	23	18	53	135	
October	248	158	26	16	47	141	
November	196	109	20	9	57	101	
December	128	60	16	2	51	54	

3 - Baseline Year (2019) Water Use Profile

City of Sonoma

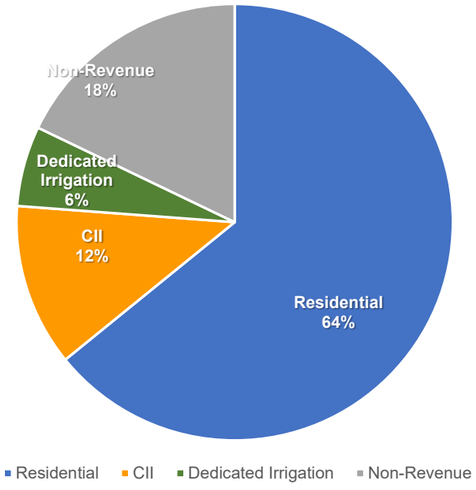
Baseline Year (2019) Annual Water Use Summary

Units: (af)

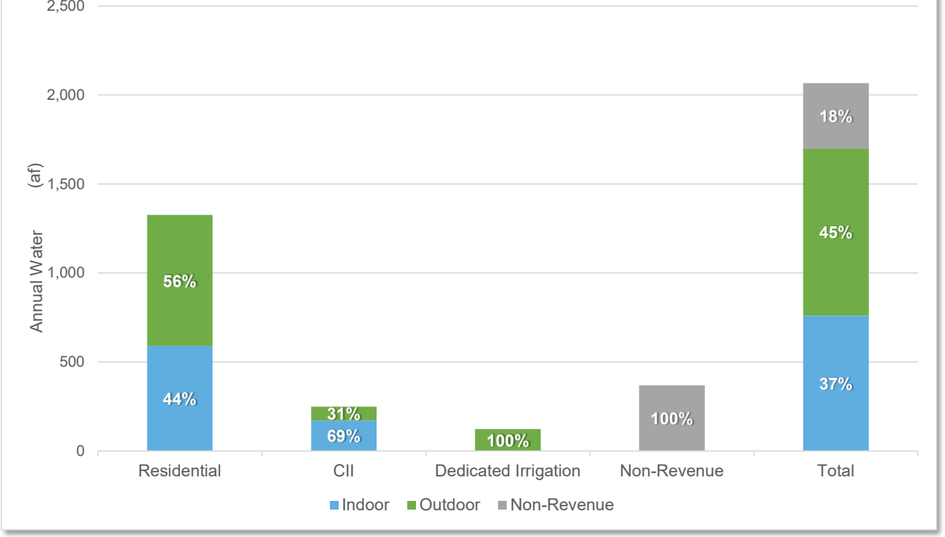
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	2,067	1,326	249	123	369	
Total Indoor	760	589	171	--	--	
Total Outdoor	937	736	78	123	--	
Total Non-Revenue	369	--	--	--	369	
Total Indoor %	37%	44%	69%	0%	--	
Total Outdoor %	45%	56%	31%	100%	--	
Total Non-Revenue %	18%	--	--	--	100%	

Baseline Year (2019) Percent Annual Water Use by Sector

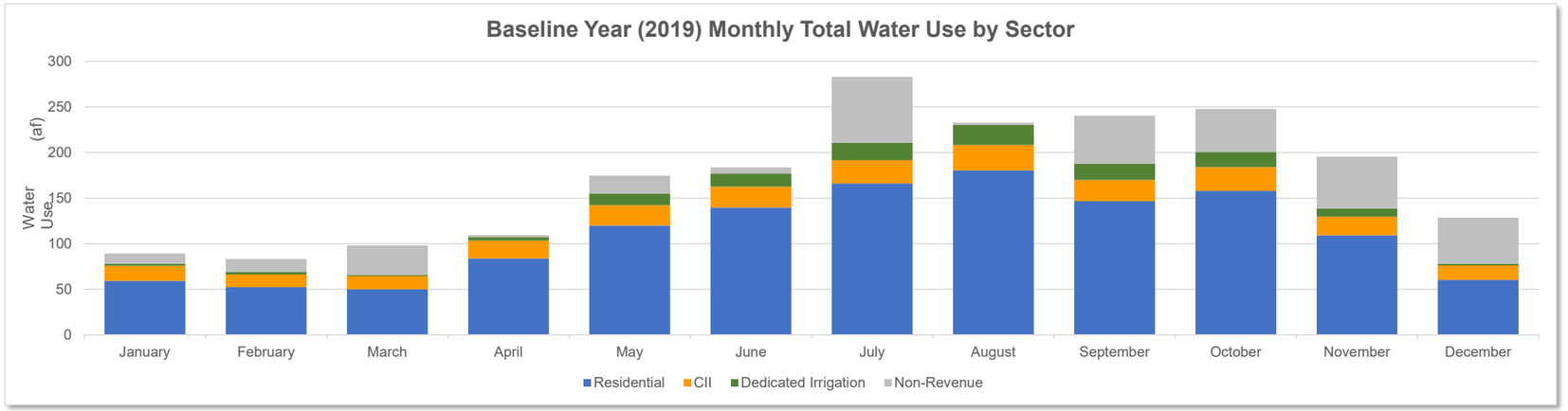


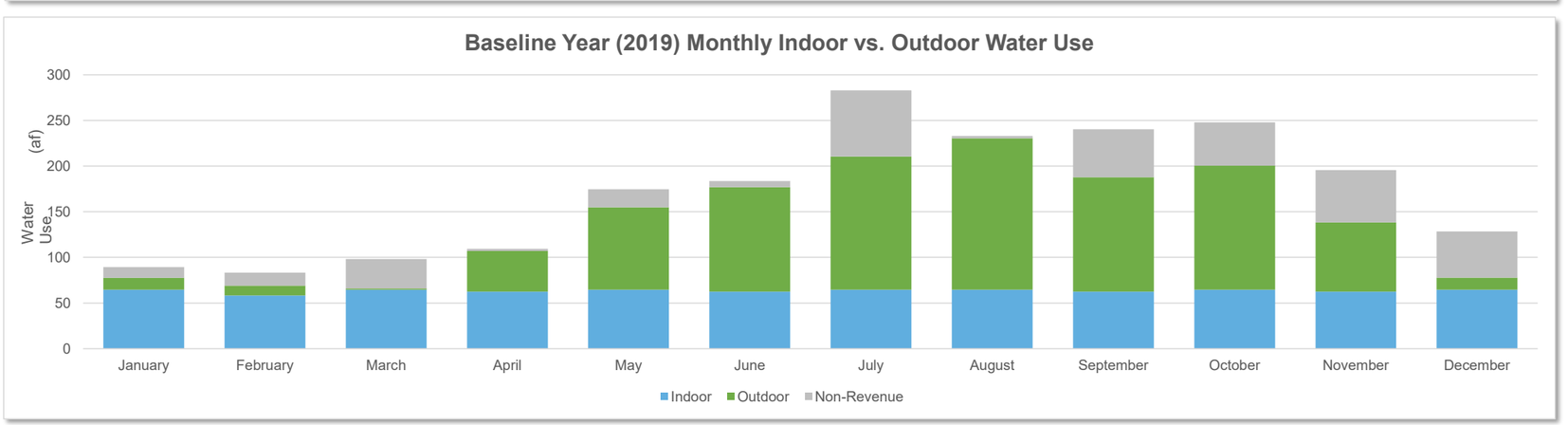
Baseline Year (2019) Annual Water Use by Sector and End Use



3 - Baseline Year (2019) Water Use Profile

City of Sonoma



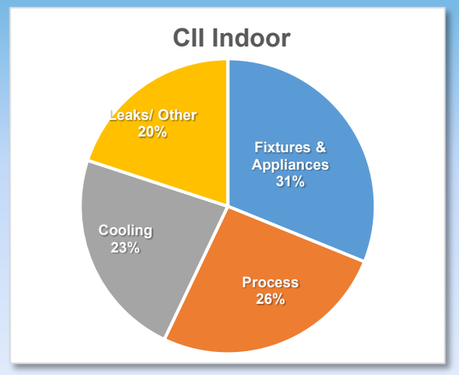


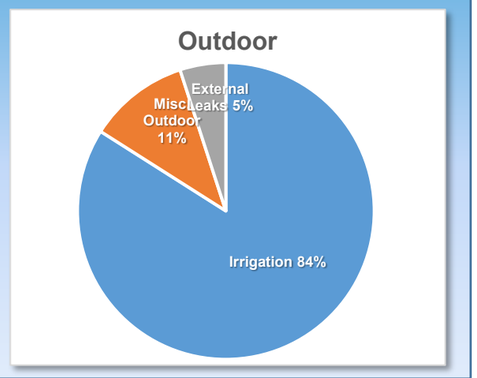
4 - Drought Response Actions - Stage 2

City of Sonoma

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**69%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 2

City of Sonoma

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions - Stage 2

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☑	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☑	**17%**	**60%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 2

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Agency Drought Actions / Restrictions**						
▶ **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☑	**17%**	**60%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☑	**17%**	**60%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 2

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 2

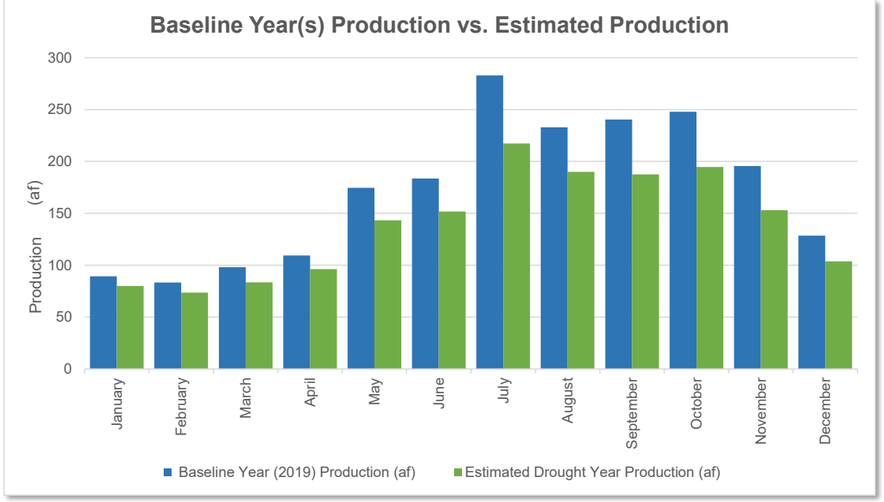
City of Sonoma

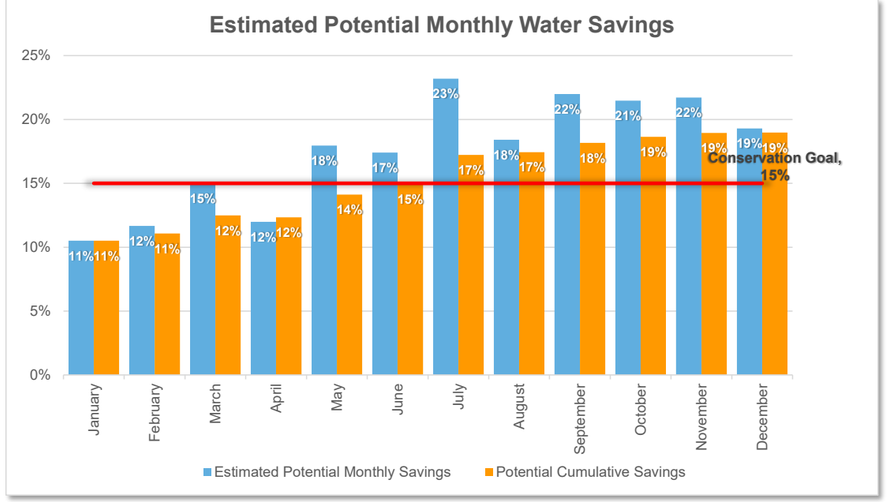
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	89	80	11%	11%	15%	
February	83	74	12%	11%	15%	
March	98	83	15%	12%	15%	
April	109	96	12%	12%	15%	
May	175	143	18%	14%	15%	
June	184	152	17%	15%	15%	
July	283	217	23%	17%	15%	
August	233	190	18%	17%	15%	
September	240	188	22%	18%	15%	
October	248	195	21%	19%	15%	
November	196	153	22%	19%	15%	
December	128	104	19%	19%	15%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

Enter Agency Information	
Agency Name	City of Sonoma
Total Population Served	11,764
Conservation Goal (%)	25%
Drought Stage	Stage 3
Number of Residential Accounts	3,828
Number of Commercial, Industrial, and Institutional (CII) Accounts	293
Number of Dedicated Irrigation Accounts	76
Baseline Year(s)	2019
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

Disclaimer: *This electronic file is being provided by EKI Environment & Water Inc. (EKI; fomerly Erler & Kalinowski, Inc.) at the request of (CLIENT). The Drought Response Tool was transmitted to CLIENT in electronic format, on a CD dated [DATE] (Original Document). Only the Original Document, provided to, and for the sole benefit of, CLIENT constitutes EKI's professional work product. An electronic copy of the Drought Response Tool is provided to CLIENT's Customer Agencies, for use only by CLIENT-designated Customer Agencies. The Drought Response Tool is copyrighted by EKI. All rights are reserved by EKI, and content may not be reproduced, downloaded, disseminated, published, or transferred in any form or by any means, except with the prior written permission of EKI. Customer Agencies may use the Drought Response Tool for reviewing potential drought response alternatives. The delivery to, or use by, Customer Agencies of the Drought Response Tool does not provide rights of reliance by Client Agencies or other third parties without the express written consent of EKI and subject to the execution of an agreement between such Customer Agency or other third party and EKI. EKI makes no warranties, either express or implied, of the electronic media or regarding its merchantability, applicability, compatibility with the recipients' computer equipment or software; of the fitness for any particular purpose; or that the electronic media contains no defect or is virus free. Use of EKI's Drought Response Tool, other electronic media, or other work product by Client Agency or others shall be at the party's sole risk. Further, by use of this electronic media, the user agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless EKI, CLIENT, and their officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any use, modification or changes made to the electronic files by anyone other than EKI or from any unauthorized distribution or reuse of the electronic files without the prior written consent of EKI.*

2 - Input Baseline Year (2019) Water Use

City of Sonoma

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
January	89	59	17	2	12	53	Total production from 2019 DWR report
February	83	52	14	3	14	52	
March	98	50	15	1	32	45	
April	109	84	20	4	2	77	
May	175	120	22	13	20	107	
June	184	140	23	14	7	129	
July	283	166	26	19	72	148	
August	233	180	28	22	2	161	
September	240	147	23	18	53	135	
October	248	158	26	16	47	141	
November	196	109	20	9	57	101	
December	128	60	16	2	51	54	

3 - Baseline Year (2019) Water Use Profile

City of Sonoma

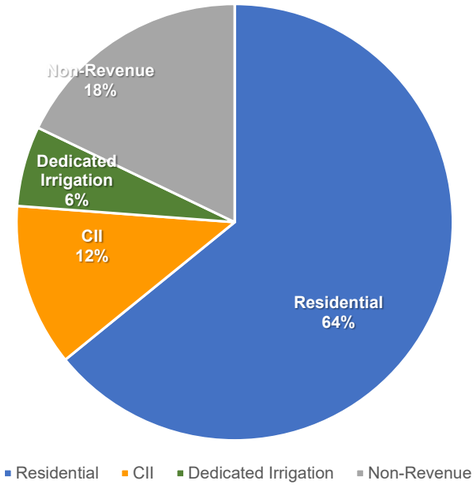
Baseline Year (2019) Annual Water Use Summary

Units: (af)

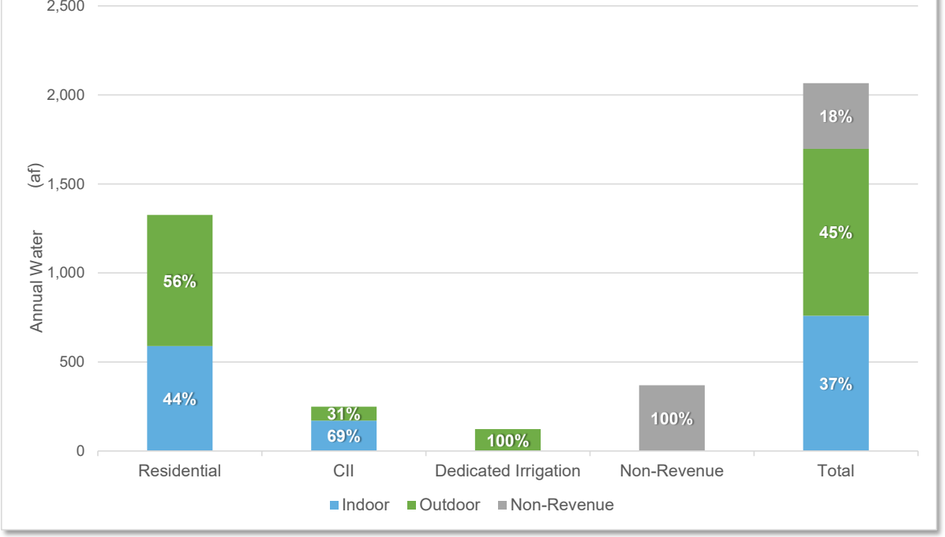
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	2,067	1,326	249	123	369	
Total Indoor	760	589	171	--	--	
Total Outdoor	937	736	78	123	--	
Total Non-Revenue	369	--	--	--	369	
Total Indoor %	37%	44%	69%	0%	--	
Total Outdoor %	45%	56%	31%	100%	--	
Total Non-Revenue %	18%	--	--	--	100%	

Baseline Year (2019) Percent Annual Water Use by Sector

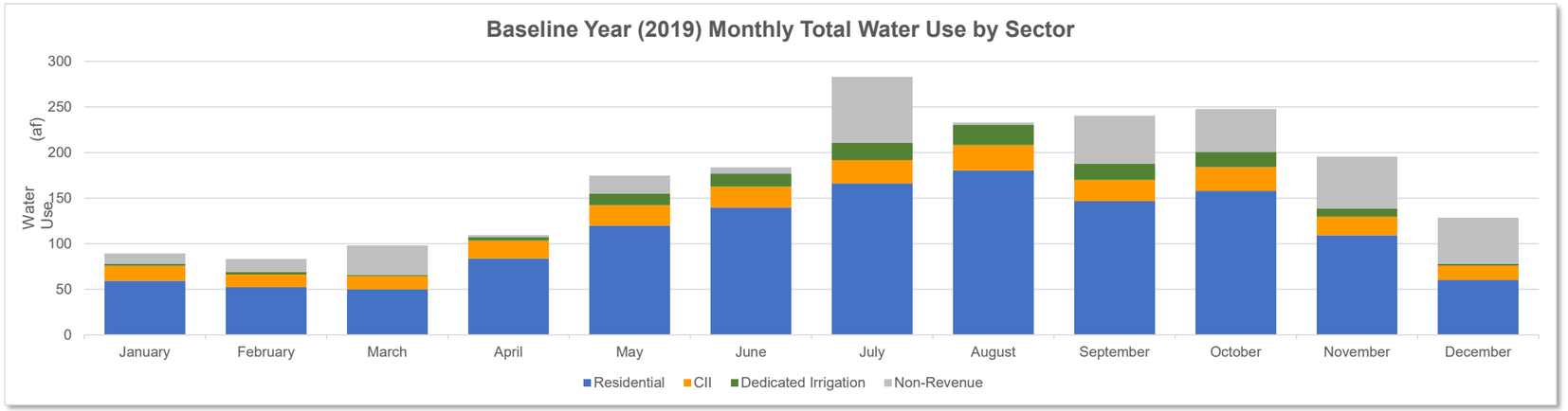


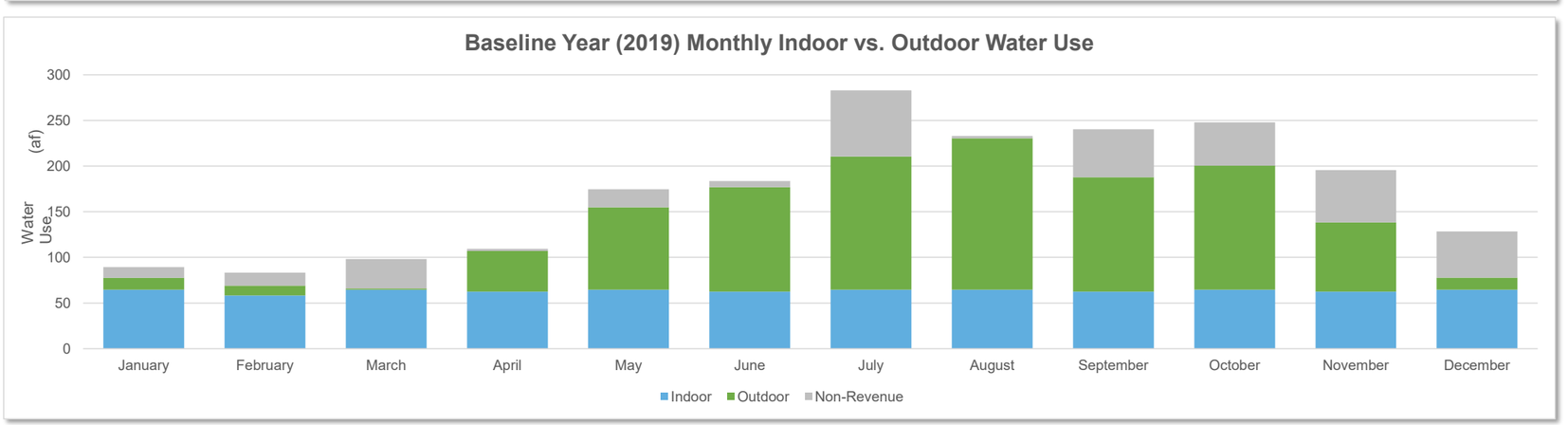
Baseline Year (2019) Annual Water Use by Sector and End Use



3 - Baseline Year (2019) Water Use Profile

City of Sonoma



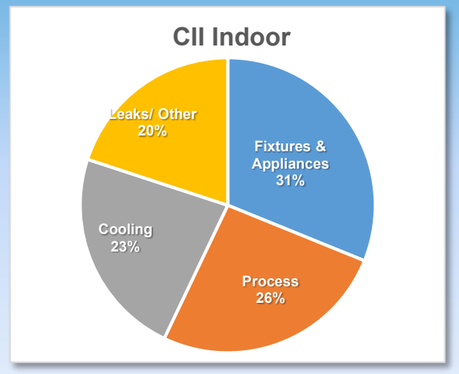


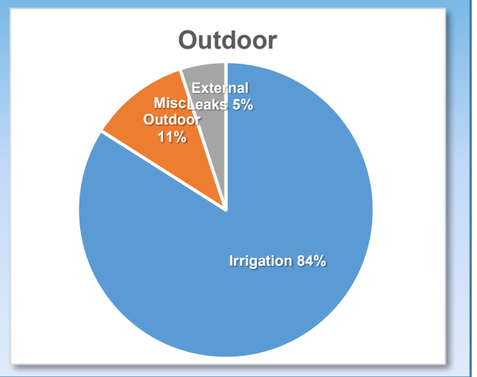
4 - Drought Response Actions - Stage 3

City of Sonoma

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**69%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 3

City of Sonoma

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions - Stage 3

City of Sonoma

Drought Response Actions						
Action Description	**End Use(s)**	**Implement Program**	**End Use Savings (%)**	**Implementation Rate**	**Source of Default Savings Estimate**	**Source of Default Implementation Rate**
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**1.0%**	**75%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.0%**	**75%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**1.0%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☑	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 3

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Agency Drought Actions / Restrictions**						
▶ **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☑	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☑	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 3

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 3

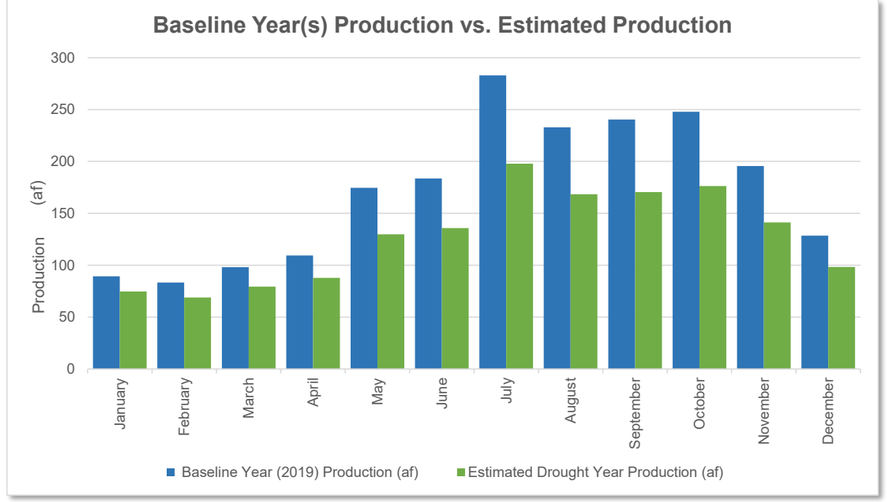
City of Sonoma

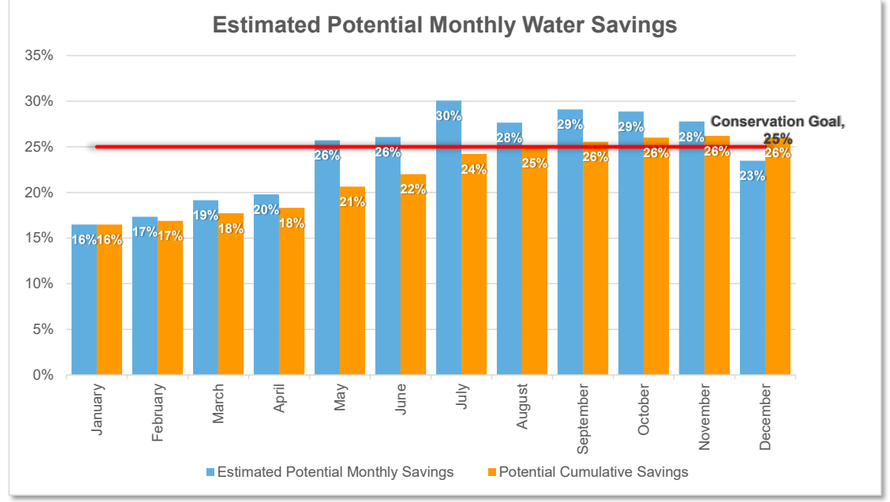
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	89	75	16%	16%	25%	
February	83	69	17%	17%	25%	
March	98	79	19%	18%	25%	
April	109	88	20%	18%	25%	
May	175	130	26%	21%	25%	
June	184	136	26%	22%	25%	
July	283	198	30%	24%	25%	
August	233	168	28%	25%	25%	
September	240	170	29%	26%	25%	
October	248	176	29%	26%	25%	
November	196	141	28%	26%	25%	
December	128	98	23%	26%	25%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

Enter Agency Information	
Agency Name	City of Sonoma
Total Population Served	11,764
Conservation Goal (%)	35%
Drought Stage	Stage 4
Number of Residential Accounts	3,828
Number of Commercial, Industrial, and Institutional (CII) Accounts	293
Number of Dedicated Irrigation Accounts	76
Baseline Year(s)	2019
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

Disclaimer: *This electronic file is being provided by EKI Environment & Water Inc. (EKI; fomerly Erler & Kalinowski, Inc.) at the request of (CLIENT). The Drought Response Tool was transmitted to CLIENT in electronic format, on a CD dated [DATE] (Original Document). Only the Original Document, provided to, and for the sole benefit of, CLIENT constitutes EKI's professional work product. An electronic copy of the Drought Response Tool is provided to CLIENT's Customer Agencies, for use only by CLIENT-designated Customer Agencies. The Drought Response Tool is copyrighted by EKI. All rights are reserved by EKI, and content may not be reproduced, downloaded, disseminated, published, or transferred in any form or by any means, except with the prior written permission of EKI. Customer Agencies may use the Drought Response Tool for reviewing potential drought response alternatives. The delivery to, or use by, Customer Agencies of the Drought Response Tool does not provide rights of reliance by Client Agencies or other third parties without the express written consent of EKI and subject to the execution of an agreement between such Customer Agency or other third party and EKI. EKI makes no warranties, either express or implied, of the electronic media or regarding its merchantability, applicability, compatibility with the recipients' computer equipment or software; of the fitness for any particular purpose; or that the electronic media contains no defect or is virus free. Use of EKI's Drought Response Tool, other electronic media, or other work product by Client Agency or others shall be at the party's sole risk. Further, by use of this electronic media, the user agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless EKI, CLIENT, and their officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any use, modification or changes made to the electronic files by anyone other than EKI or from any unauthorized distribution or reuse of the electronic files without the prior written consent of EKI.*

2 - Input Baseline Year (2019) Water Use

City of Sonoma

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
January	89	59	17	2	12	53	Total production from 2019 DWR report
February	83	52	14	3	14	52	
March	98	50	15	1	32	45	
April	109	84	20	4	2	77	
May	175	120	22	13	20	107	
June	184	140	23	14	7	129	
July	283	166	26	19	72	148	
August	233	180	28	22	2	161	
September	240	147	23	18	53	135	
October	248	158	26	16	47	141	
November	196	109	20	9	57	101	
December	128	60	16	2	51	54	

3 - Baseline Year (2019) Water Use Profile

City of Sonoma

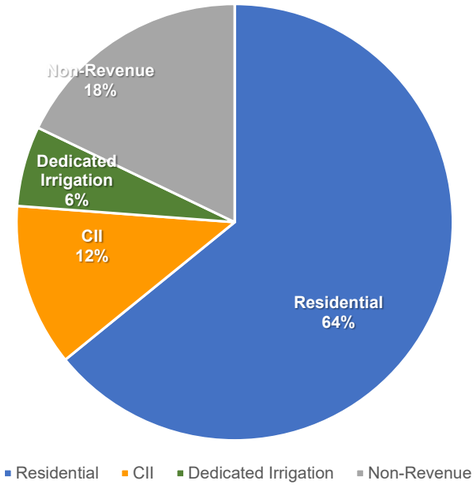
Baseline Year (2019) Annual Water Use Summary

Units: (af)

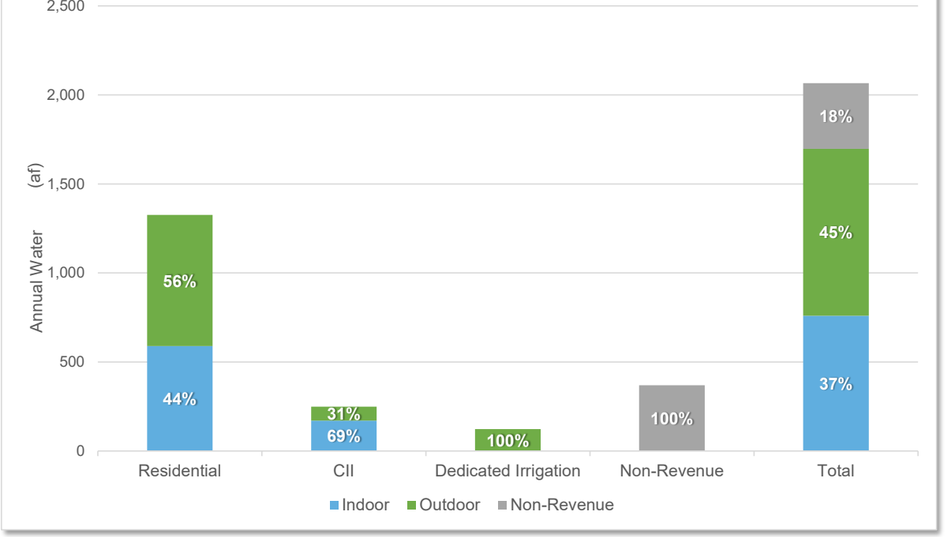
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	2,067	1,326	249	123	369	
Total Indoor	760	589	171	--	--	
Total Outdoor	937	736	78	123	--	
Total Non-Revenue	369	--	--	--	369	
Total Indoor %	37%	44%	69%	0%	--	
Total Outdoor %	45%	56%	31%	100%	--	
Total Non-Revenue %	18%	--	--	--	100%	

Baseline Year (2019) Percent Annual Water Use by Sector

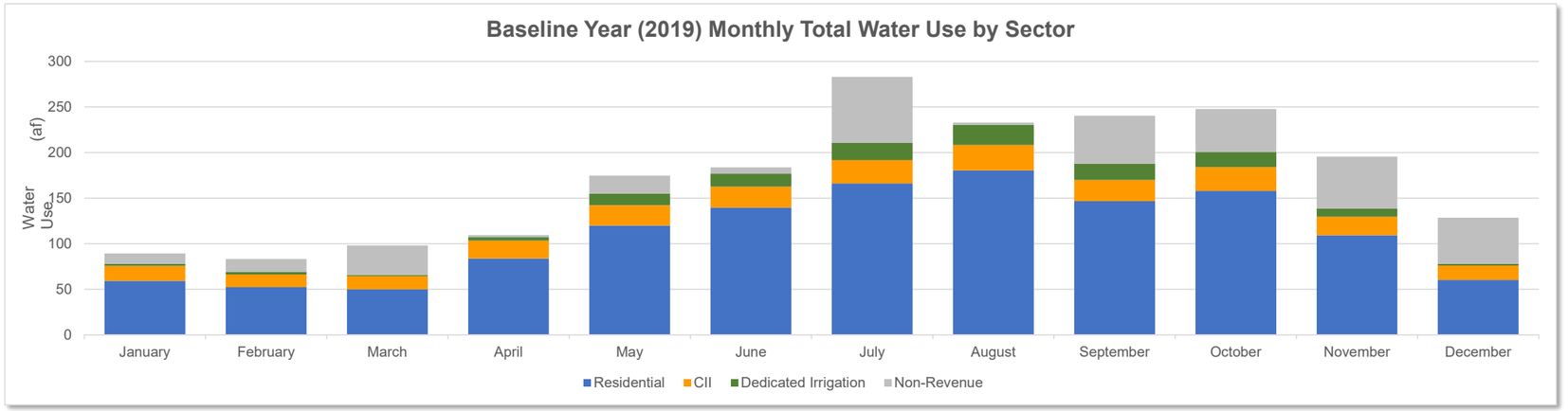


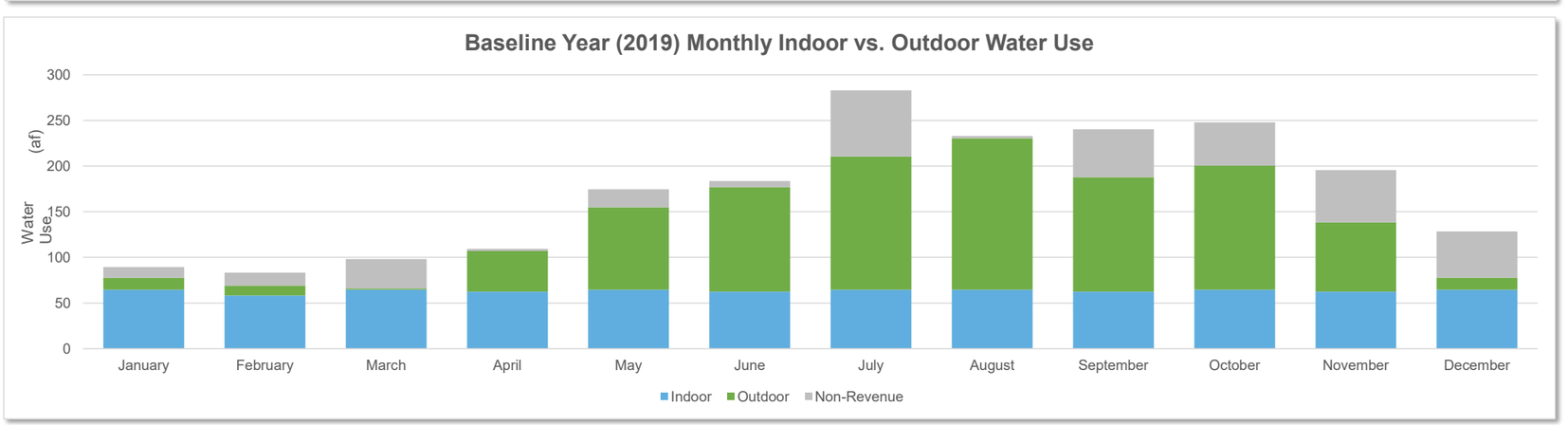
Baseline Year (2019) Annual Water Use by Sector and End Use



3 - Baseline Year (2019) Water Use Profile

City of Sonoma



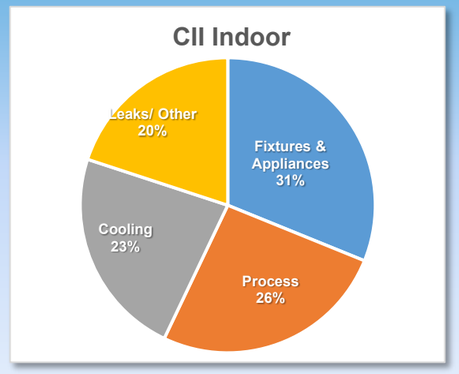


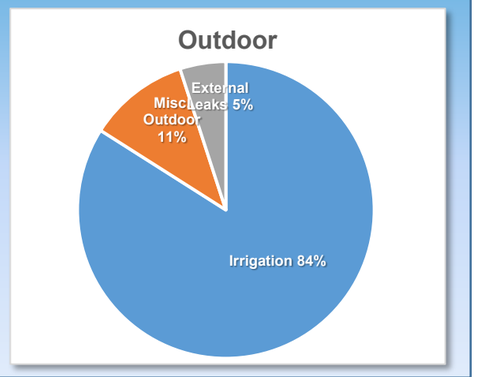
4 - Drought Response Actions - Stage 4

City of Sonoma

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**69%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 4

City of Sonoma

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions - Stage 4

City of Sonoma

Drought Response Actions						
Action Description	**End Use(s)**	**Implement Program**	**End Use Savings (%)**	**Implementation Rate**	**Source of Default Savings Estimate**	**Source of Default Implementation Rate**
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**1.5%**	**75%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		**75%**	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.5%**	**75%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**1.5%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	**75%**	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 4

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Agency Drought Actions / Restrictions**						
▶ **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☑	10%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	**75%**	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☑	10%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☑	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	**75%**	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 4

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 4

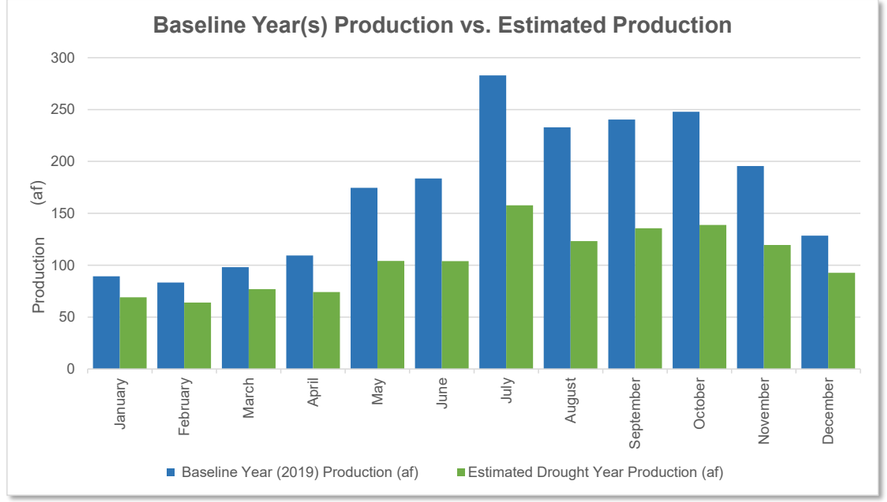
City of Sonoma

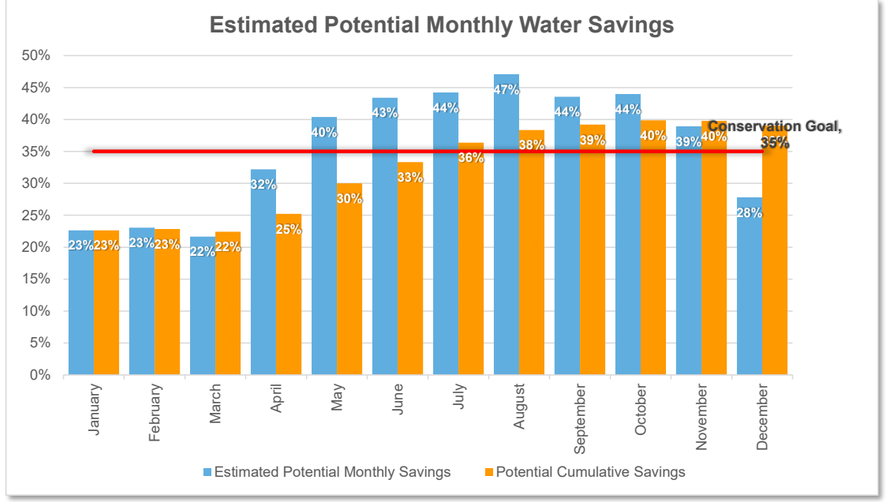
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	89	69	23%	23%	35%	
February	83	64	23%	23%	35%	
March	98	77	22%	22%	35%	
April	109	74	32%	25%	35%	
May	175	104	40%	30%	35%	
June	184	104	43%	33%	35%	
July	283	158	44%	36%	35%	
August	233	123	47%	38%	35%	
September	240	136	44%	39%	35%	
October	248	139	44%	40%	35%	
November	196	119	39%	40%	35%	
December	128	93	28%	39%	35%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

Enter Agency Information	
Agency Name	City of Sonoma
Total Population Served	11,764
Conservation Goal (%)	45%
Drought Stage	Stage 5
Number of Residential Accounts	3,828
Number of Commercial, Industrial, and Institutional (CII) Accounts	293
Number of Dedicated Irrigation Accounts	76
Baseline Year(s)	2019
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

Disclaimer: *This electronic file is being provided by EKI Environment & Water Inc. (EKI; fomerly Erler & Kalinowski, Inc.) at the request of (CLIENT). The Drought Response Tool was transmitted to CLIENT in electronic format, on a CD dated [DATE] (Original Document). Only the Original Document, provided to, and for the sole benefit of, CLIENT constitutes EKI's professional work product. An electronic copy of the Drought Response Tool is provided to CLIENT's Customer Agencies, for use only by CLIENT-designated Customer Agencies. The Drought Response Tool is copyrighted by EKI. All rights are reserved by EKI, and content may not be reproduced, downloaded, disseminated, published, or transferred in any form or by any means, except with the prior written permission of EKI. Customer Agencies may use the Drought Response Tool for reviewing potential drought response alternatives. The delivery to, or use by, Customer Agencies of the Drought Response Tool does not provide rights of reliance by Client Agencies or other third parties without the express written consent of EKI and subject to the execution of an agreement between such Customer Agency or other third party and EKI. EKI makes no warranties, either express or implied, of the electronic media or regarding its merchantability, applicability, compatibility with the recipients' computer equipment or software; of the fitness for any particular purpose; or that the electronic media contains no defect or is virus free. Use of EKI's Drought Response Tool, other electronic media, or other work product by Client Agency or others shall be at the party's sole risk. Further, by use of this electronic media, the user agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless EKI, CLIENT, and their officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any use, modification or changes made to the electronic files by anyone other than EKI or from any unauthorized distribution or reuse of the electronic files without the prior written consent of EKI.*

2 - Input Baseline Year (2019) Water Use

City of Sonoma

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
January	89	59	17	2	12	53	Total production from 2019 DWR report
February	83	52	14	3	14	52	
March	98	50	15	1	32	45	
April	109	84	20	4	2	77	
May	175	120	22	13	20	107	
June	184	140	23	14	7	129	
July	283	166	26	19	72	148	
August	233	180	28	22	2	161	
September	240	147	23	18	53	135	
October	248	158	26	16	47	141	
November	196	109	20	9	57	101	
December	128	60	16	2	51	54	

3 - Baseline Year (2019) Water Use Profile

City of Sonoma

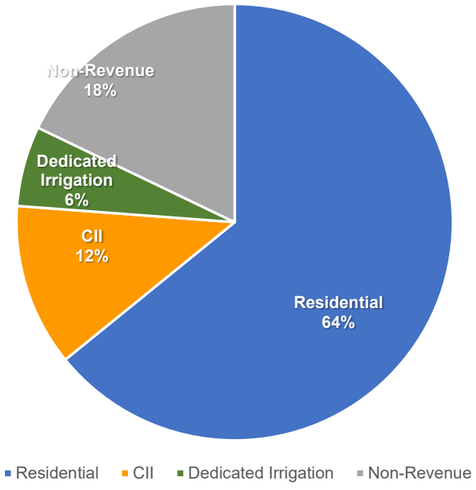
Baseline Year (2019) Annual Water Use Summary

Units: (af)

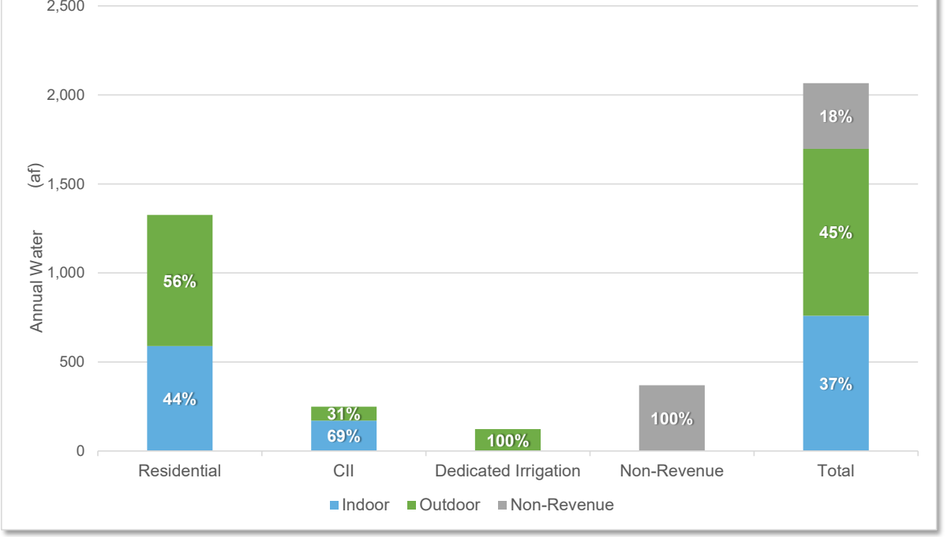
A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	2,067	1,326	249	123	369	
Total Indoor	760	589	171	--	--	
Total Outdoor	937	736	78	123	--	
Total Non-Revenue	369	--	--	--	369	
Total Indoor %	37%	44%	69%	0%	--	
Total Outdoor %	45%	56%	31%	100%	--	
Total Non-Revenue %	18%	--	--	--	100%	

Baseline Year (2019) Percent Annual Water Use by Sector

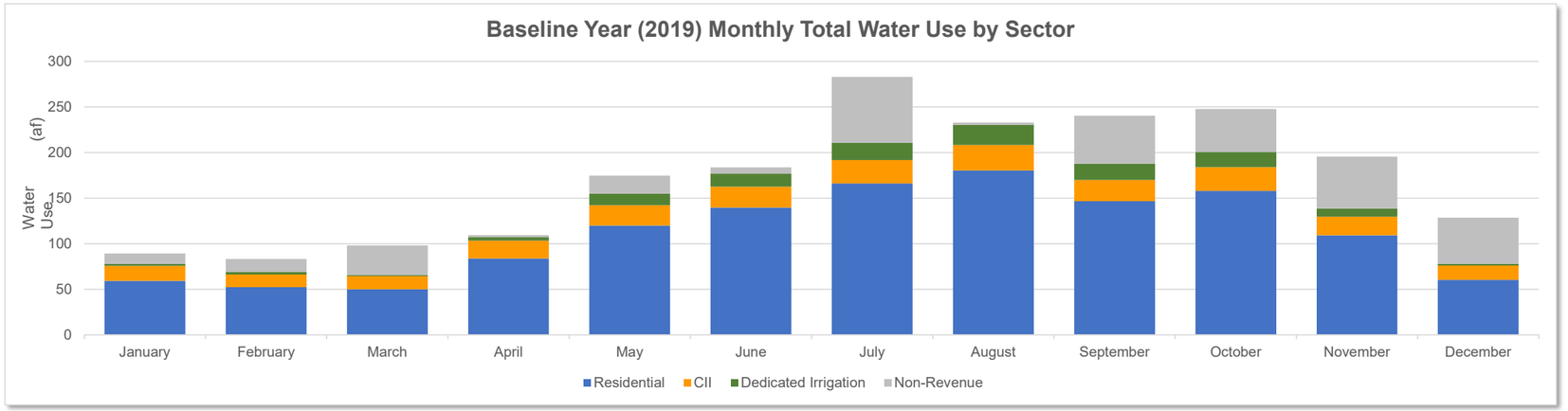


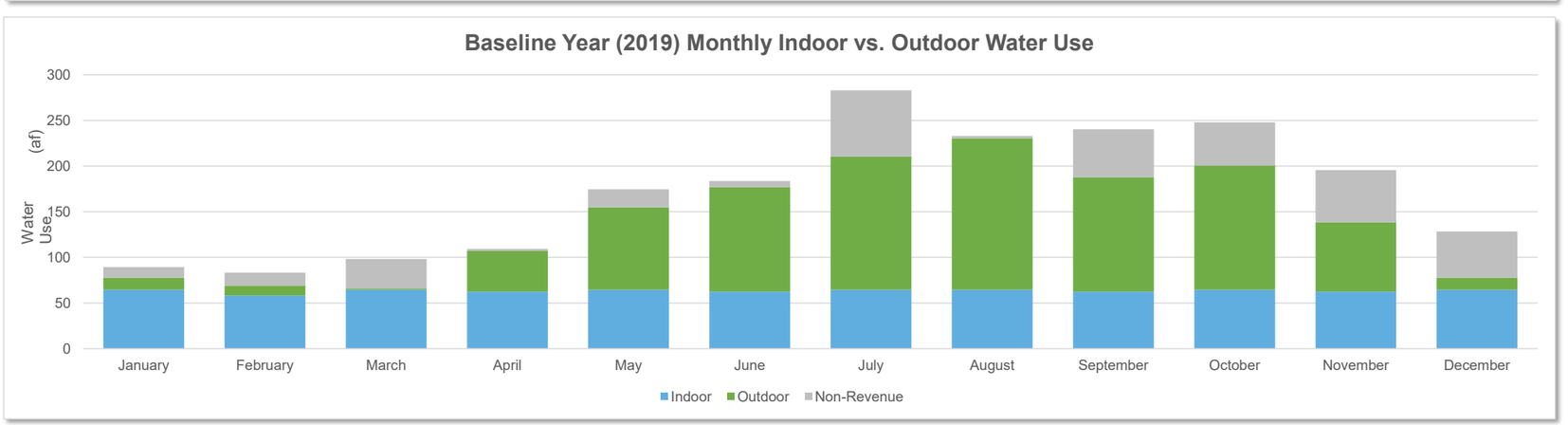
Baseline Year (2019) Annual Water Use by Sector and End Use



3 - Baseline Year (2019) Water Use Profile

City of Sonoma



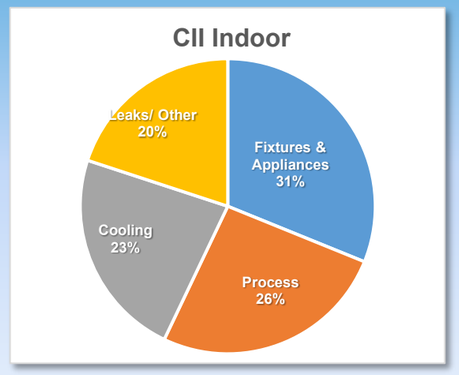


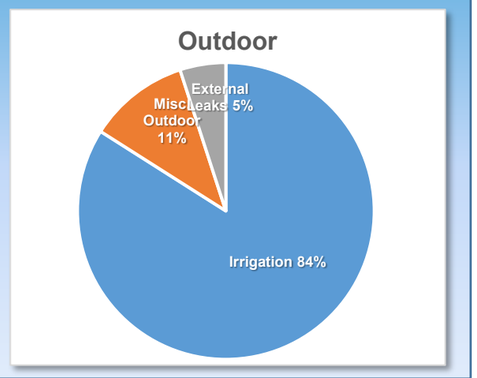
4 - Drought Response Actions - Stage 5

City of Sonoma

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**69%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 5

City of Sonoma

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions - Stage 5

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	**80%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**65%**		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	**75%**	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 5

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☑	10%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	**80%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	**85%**		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	75%	--	--
Establish Water Budget - 30% Reduction	All Residential Uses	☑	**45%**	**65%**	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☑	10%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	**80%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☑	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	75%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	75%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☑	**45%**	**65%**	--	--

4 - Drought Response Actions - Stage 5

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 5

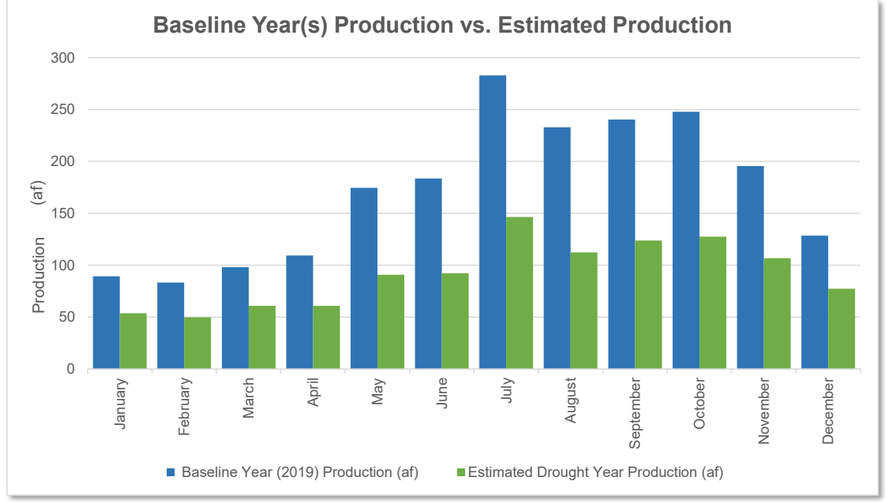
City of Sonoma

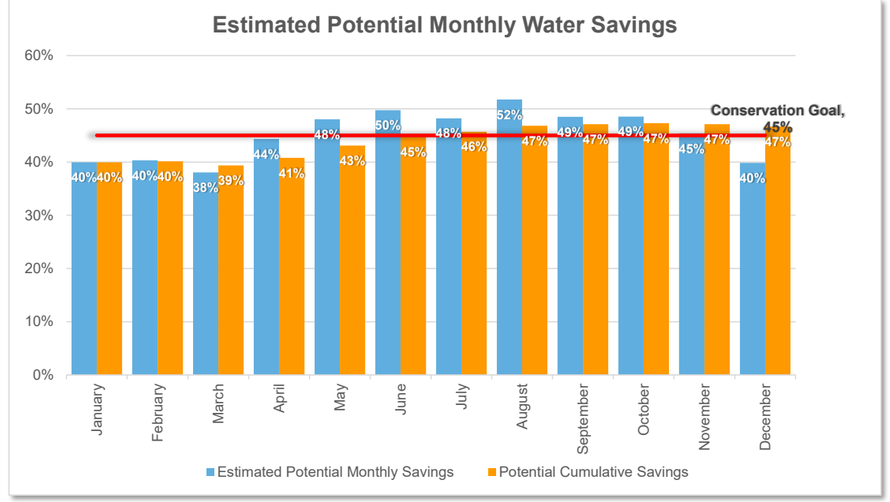
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	89	54	40%	40%	45%	
February	83	50	40%	40%	45%	
March	98	61	38%	39%	45%	
April	109	61	44%	41%	45%	
May	175	91	48%	43%	45%	
June	184	92	50%	45%	45%	
July	283	147	48%	46%	45%	
August	233	112	52%	47%	45%	
September	240	124	49%	47%	45%	
October	248	128	49%	47%	45%	
November	196	107	45%	47%	45%	
December	128	77	40%	47%	45%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

Enter Agency Information	
Agency Name	City of Sonoma
Total Population Served	11,764
Conservation Goal (%)	55%
Drought Stage	Stage 6
Number of Residential Accounts	3,828
Number of Commercial, Industrial, and Institutional (CII) Accounts	293
Number of Dedicated Irrigation Accounts	76
Baseline Year(s)	2019
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Sonoma

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

Disclaimer: *This electronic file is being provided by EKI Environment & Water Inc. (EKI; fomerly Erler & Kalinowski, Inc.) at the request of (CLIENT). The Drought Response Tool was transmitted to CLIENT in electronic format, on a CD dated [DATE] (Original Document). Only the Original Document, provided to, and for the sole benefit of, CLIENT constitutes EKI's professional work product. An electronic copy of the Drought Response Tool is provided to CLIENT's Customer Agencies, for use only by CLIENT-designated Customer Agencies. The Drought Response Tool is copyrighted by EKI. All rights are reserved by EKI, and content may not be reproduced, downloaded, disseminated, published, or transferred in any form or by any means, except with the prior written permission of EKI. Customer Agencies may use the Drought Response Tool for reviewing potential drought response alternatives. The delivery to, or use by, Customer Agencies of the Drought Response Tool does not provide rights of reliance by Client Agencies or other third parties without the express written consent of EKI and subject to the execution of an agreement between such Customer Agency or other third party and EKI. EKI makes no warranties, either express or implied, of the electronic media or regarding its merchantability, applicability, compatibility with the recipients' computer equipment or software; of the fitness for any particular purpose; or that the electronic media contains no defect or is virus free. Use of EKI's Drought Response Tool, other electronic media, or other work product by Client Agency or others shall be at the party's sole risk. Further, by use of this electronic media, the user agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless EKI, CLIENT, and their officers, directors, employees, and subconsultants against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any use, modification or changes made to the electronic files by anyone other than EKI or from any unauthorized distribution or reuse of the electronic files without the prior written consent of EKI.*

3 - Baseline Year (2019) Water Use Profile

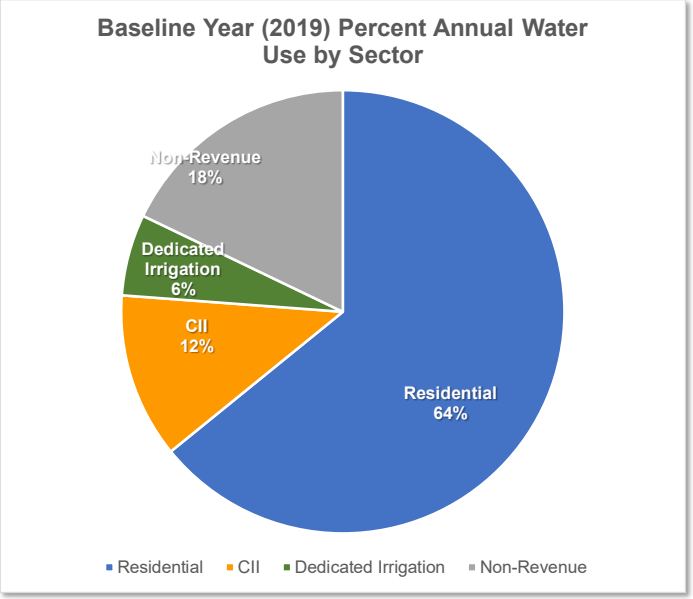
City of Sonoma

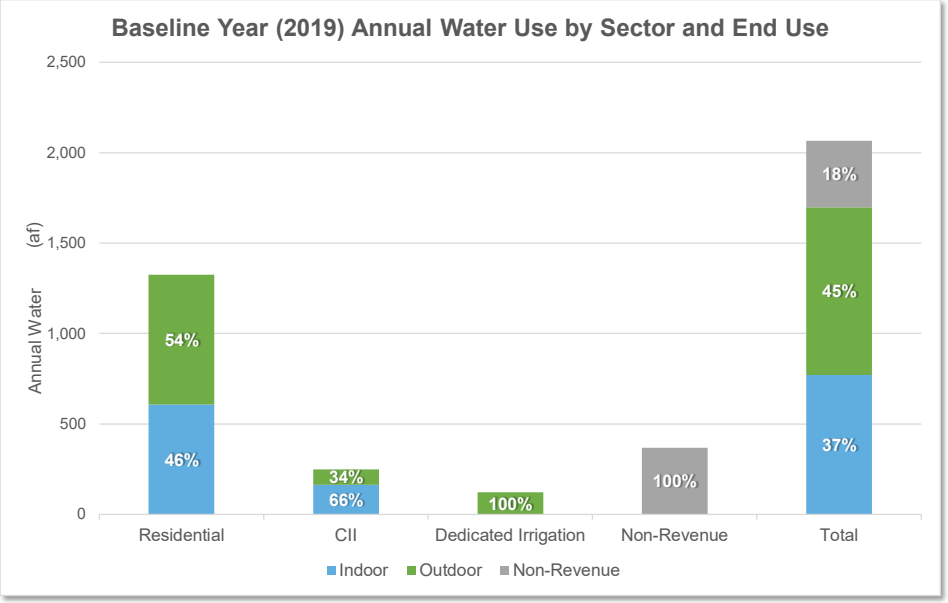
Baseline Year (2019) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

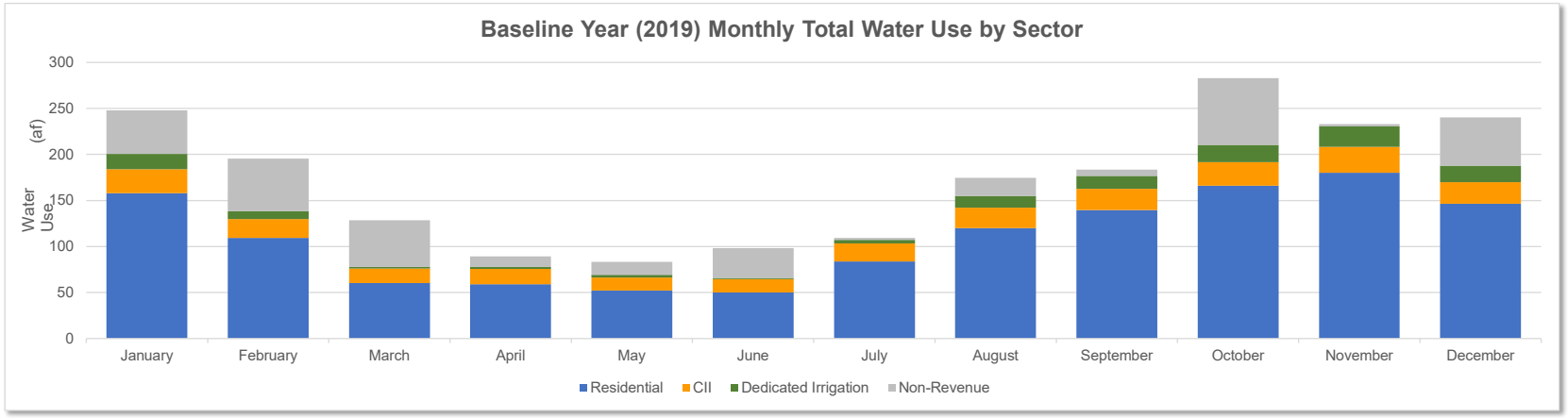
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	2,067	1,326	249	123	369	
Total Indoor	772	609	163	--	--	
Total Outdoor	925	717	86	123	--	
Total Non-Revenue	369	--	--	--	369	
Total Indoor %	37%	46%	66%	0%	--	
Total Outdoor %	45%	54%	34%	100%	--	
Total Non-Revenue %	18%	--	--	--	100%	

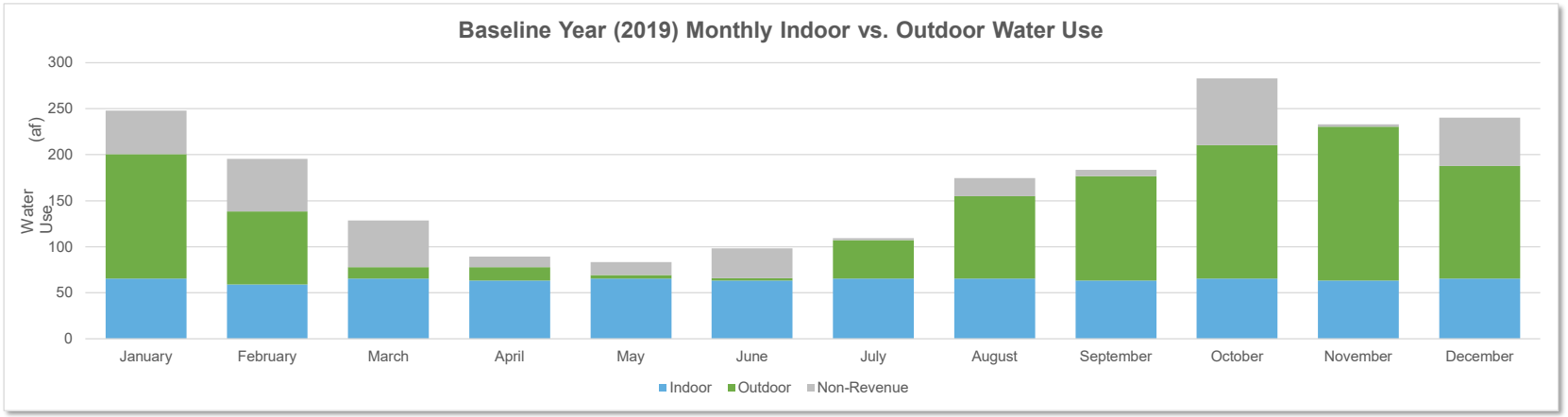




3 - Baseline Year (2019) Water Use Profile

City of Sonoma

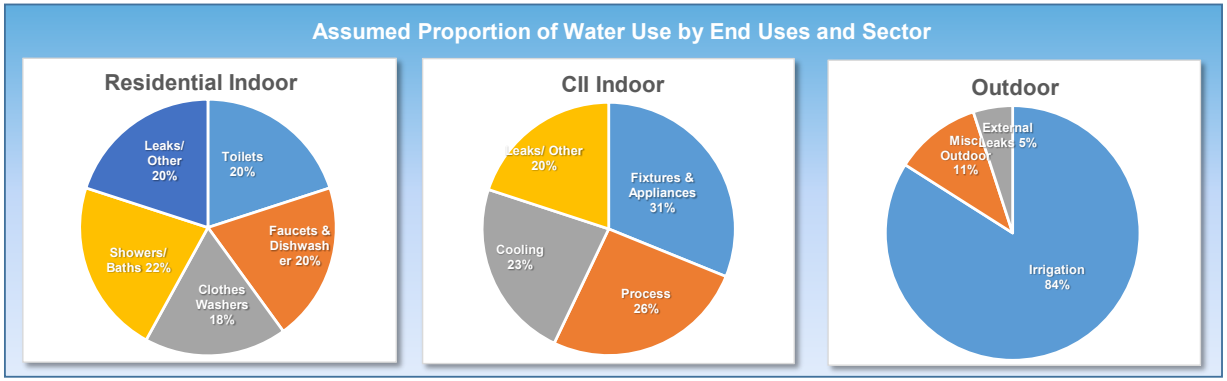




4 - Drought Response Actions - Stage 6

City of Sonoma

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**70%**	of Total Baseline Production



4 - Drought Response Actions - Stage 6

City of Sonoma

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions - Stage 6

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**2.5%**	**90%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**2.5%**	**90%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**2.5%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☑			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	80%		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**80%**		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	**75%**	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	**90%**	--	--

4 - Drought Response Actions - Stage 6

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☑	10%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	**80%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	**85%**		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	**75%**	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	**50%**	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	**50%**	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	75%	--	--
Establish Water Budget - 55% Reduction	All Residential Uses	☑	**55%**	**80%**	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☑	10%	**20%**	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 8PM and 6AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 0 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	**100%**	**85%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	**75%**	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	75%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	80%	--	--
Establish Water Budget - 55% Reduction	All CII uses	☑	**55%**	**80%**	--	--

4 - Drought Response Actions - Stage 6

City of Sonoma

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 6

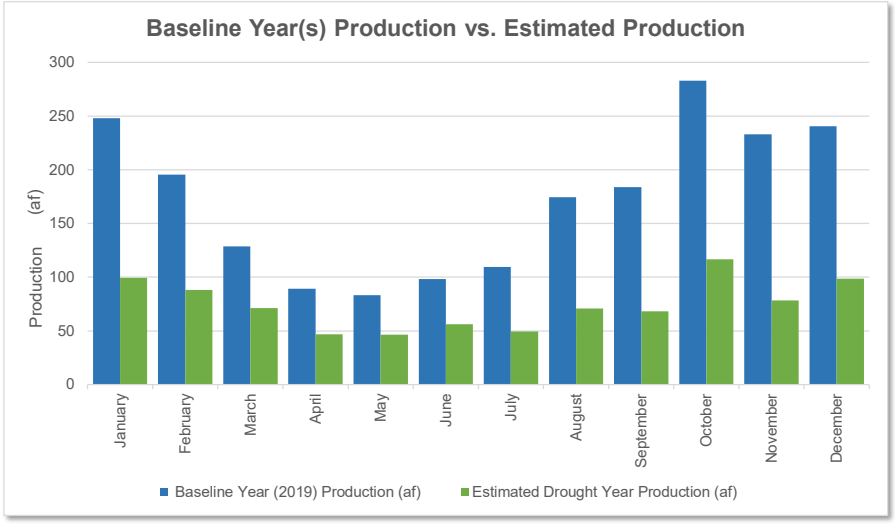
City of Sonoma

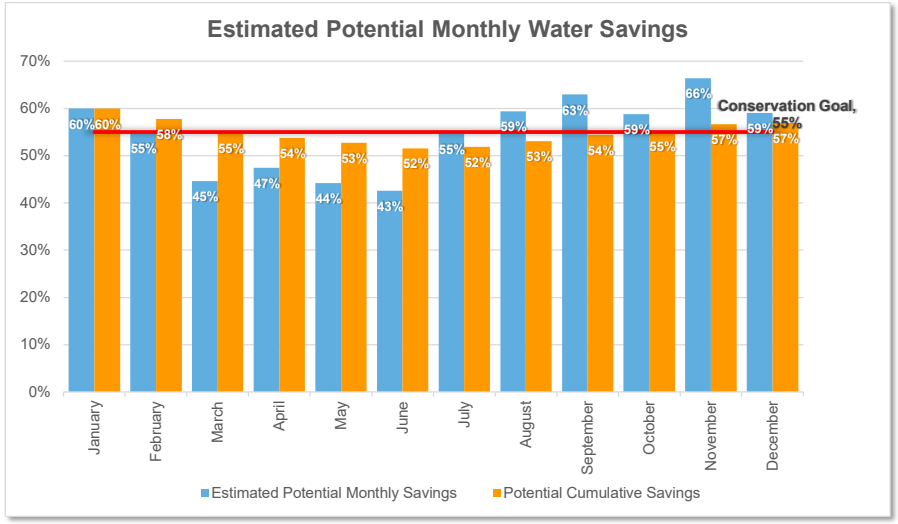
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	248	99	60%	60%	55%	
February	196	88	55%	58%	55%	
March	128	71	45%	55%	55%	
April	89	47	47%	54%	55%	
May	83	46	44%	53%	55%	
June	98	56	43%	52%	55%	
July	109	50	55%	52%	55%	
August	175	71	59%	53%	55%	
September	184	68	63%	54%	55%	
October	283	117	59%	55%	55%	
November	233	78	66%	57%	55%	
December	240	98	59%	57%	55%	





ATTACHMENT 3

WATER SHORTAGE CONTINGENCY PLAN RESOLUTIONS

City of Sonoma

RESOLUTION #37- 2021

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SONOMA ADOPTING THE CITY OF SONOMA 2020 UPDATE TO THE URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the Urban Water Management Planning Act, Water Code Section 10610 et seq., (the Act) requires that every urban water supplier which provides 3,000 acre feet or more of water annually, or which directly or indirectly supplies water for municipal purposes to more than 3,000 customers, shall prepare an Urban Water Management Plan (UWMP), the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the City has prepared a 2020 update to the UWMP and included Water Shortage Contingency Plan (WSCP) in accordance with the Act and with the 2020 Urban Water Management Plan Guidelines for Urban Water Suppliers; and

WHEREAS, the purpose of the UWMP and WSCP is to consolidate information regarding water supply and demand, provide public information, and improve state-wide water planning; and

WHEREAS, the UWMP must be adopted after public review and a public hearing by the City, and after adoption by the City Council must be filed with the California Department of Water Resources and sent to the State Library; and

WHEREAS, the City of Sonoma published a notice on the public hearing on May 21 and May 28, 2021 in the Sonoma Index-Tribune; and

WHEREAS, the Sonoma City Council conducted a public hearing on the City of Sonoma 2020 Urban Water Management Plan and Water Shortage Contingency Plan on June 7, 2021; and

WHEREAS, adoption of the Urban Water Management Plan pursuant to this resolution is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines section 15061(B)(3) as it can be seen with certainty that there is no possibility that adoption of the 2020 UWMP may have a significant effect on the environment.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Sonoma as follows:

1. The City of Sonoma 2020 Urban Water Management Plan and 2020 Water Shortage Contingency Plan, are hereby adopted.

2. City staff is hereby directed to submit the City of Sonoma 2020 Urban Water Management Plan to the California Department of Water Resources and the California State Library within 30 days of adoption of the Plan.

3. City staff is also directed to prepare an ordinance for City Council consideration to amend Sonoma Municipal Code Chapter 13.10 Water Shortage and Conservation Plan for consistency with the 2020 Water Shortage Contingency Plan.

ADOPTED this 7th day of June, 2021 by the following vote:

AYES: ***BARNETT, DING, HARRINGTON, AGRIMONTI***
NOES:
ABSENT:

Madolyn Agrimonti, Vice Mayor

ATTEST:

Rebekah Barr, MMC
City Clerk

Appendix G

RESOLUTION 37-2021 ON UWMP AND WSCP 2020 UPDATE

City of Sonoma

RESOLUTION #37- 2021

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SONOMA ADOPTING THE CITY OF SONOMA 2020 UPDATE TO THE URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the Urban Water Management Planning Act, Water Code Section 10610 et seq., (the Act) requires that every urban water supplier which provides 3,000 acre feet or more of water annually, or which directly or indirectly supplies water for municipal purposes to more than 3,000 customers, shall prepare an Urban Water Management Plan (UWMP), the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the City has prepared a 2020 update to the UWMP and included Water Shortage Contingency Plan (WSCP) in accordance with the Act and with the 2020 Urban Water Management Plan Guidelines for Urban Water Suppliers; and

WHEREAS, the purpose of the UWMP and WSCP is to consolidate information regarding water supply and demand, provide public information, and improve state-wide water planning; and

WHEREAS, the UWMP must be adopted after public review and a public hearing by the City, and after adoption by the City Council must be filed with the California Department of Water Resources and sent to the State Library; and

WHEREAS, the City of Sonoma published a notice on the public hearing on May 21 and May 28, 2021 in the Sonoma Index-Tribune; and

WHEREAS, the Sonoma City Council conducted a public hearing on the City of Sonoma 2020 Urban Water Management Plan and Water Shortage Contingency Plan on June 7, 2021; and

WHEREAS, adoption of the Urban Water Management Plan pursuant to this resolution is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines section 15061(B)(3) as it can be seen with certainty that there is no possibility that adoption of the 2020 UWMP may have a significant effect on the environment.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Sonoma as follows:

1. The City of Sonoma 2020 Urban Water Management Plan and 2020 Water Shortage Contingency Plan, are hereby adopted.

2. City staff is hereby directed to submit the City of Sonoma 2020 Urban Water Management Plan to the California Department of Water Resources and the California State Library within 30 days of adoption of the Plan.

3. City staff is also directed to prepare an ordinance for City Council consideration to amend Sonoma Municipal Code Chapter 13.10 Water Shortage and Conservation Plan for consistency with the 2020 Water Shortage Contingency Plan.

ADOPTED this 7th day of June, 2021 by the following vote:

AYES: ***BARNETT, DING, HARRINGTON, AGRIMONTI***
NOES:
ABSENT:

Madolyn Agrimonti, Vice Mayor

ATTEST:

Rebekah Barr, MMC
City Clerk

2001 Junipero Serra Blvd., Suite 300 | Daly City, CA 94014
(650) 292-9100 | Fax (650) 552-9012 | Ekiconsult.com