2020 Urban Water Management Plan

Hawthorne District

June 2021

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List of Acronyms

AB	Assembly Bill
AF	acre-feet
AFY	acre-feet per year
AMI	Advanced Metering Infrastructure
APA	Allowed Pumping Allocation
AWWA	American Water Works Association
CAP	Customer Assistance Program
CCF	Hundred Cubic Feet
CCR	California Code of Regulations
CII	Commercial, Institutional, and Industrial
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DDW	Division of Drinking Water
DMM	Demand Management Measure
DRA	Drought Risk Assessment
DWR	Department of Water Resources
ELWRF	Edward C. Little Water Recycling Facility
EPA	Environmental Protection Agency
ft	feet
GPCD	Gallons Per Capita Per Day
ILI	Infrastructure Leakage Index
kWh	kilowatt hours
kWh/AF	kilowatt hours per acre-foot
LACSD	Los Angeles County Sanitation Districts
LAX	Los Angeles International Airport
MCL	Maximum Contaminant Level
MGD	Million Gallons Per Day
MWD	Metropolitan Water District
PWS	Public Water System
RO	Reverse Osmosis
RUWMP	Regional Urban Water Management Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SGMA	Sustainable Groundwater Management Act
SPM	Scenario Planning Model
SRES	Special Report Emissions Scenarios
SWRCB	State Water Resources Control Board
TAP	Technical Assistance Program

TAZ	Transportation Analysis Zone
UWMP	Urban Water Management Plan
WBMWD	West Basin Municipal Water District
WRD	Water Replenishment District
WSCP	Water Shortage Contingency Plan
WWTP	Wastewater Treatment Plant

Chapter 1
Introduction and Overview

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 UWMP Guidebook 2020.[1] Specifically, this chapter contains the following sections:

1.1 Background and Purpose

1.2 Urban Water Management Planning and the California Water Code

1.3 Relationship to Other Planning Efforts

1.4 Plan Organization

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

1.6 Lay Description

1.1 Background and Purpose

California Water Service Company (Cal Water) is an investor-owned public utility supplying water service to approximately 1.8 million Californians through over 481,000 connections. Its 25 districts serve 63 communities spanning from the Chico-Hamilton City District in the northern portion of the state to the Palos Verdes District in southern California. California Water Service Group, Cal Water's parent company, also provides water service to communities in Washington, New Mexico, and Hawaii.[2] While water rates are set separately for each of Cal Water's 25 districts, oversight of the water rate setting process and district operations is provided by the California Public Utilities Commission (CPUC). However, because the Hawthorne system is operated under contract and is not owned by Cal Water, it is not regulated by the CPUC. For the purposes of this Urban Water Management Plan, City of Hawthorne Municipal Water System will be referred to as the Hawthorne District, similar to other Cal Water service areas.

[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

[2] In addition, Cal Water operates the City of Hawthorne's water system on behalf of the City.

Cal Water incorporated in 1926 and has provided water service to communities served by the Hawthorne District (also referred to herein as "District") since 1996, when the City of Hawthorne awarded a 15-year lease for the management of its municipal water system to Cal Water. A subsequent 15-year lease was awarded to Cal Water in 2012. The operation of the Hawthorne system has been integrated with Cal Water's neighboring Rancho Dominguez District. Cal Water is responsible for providing all water supply services to Hawthorne customers and will make all needed capital improvements to the system.

This UWMP is a foundational document and source of information about the Hawthorne District's historical and projected water demands, water supplies, supply reliability and potential vulnerabilities, water shortage contingency planning, and demand management programs. Among other things, it is used as:

- A long-range planning document by Cal Water for water supply and system planning; and
- A source for data on population, housing, water demands, water supplies, and capital improvement projects used in:
    - Regional water resource management plans prepared by wholesale water suppliers and other regional planning authorities (as applicable),
    - General Plans prepared by cities and counties, and
    - Statewide and broad regional water resource plans prepared by the California Department of Water Resources (DWR), the State Water Resources Control Board (SWRCB), or other state agencies.

The District'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 relevant, and provides additional information as required by subsequent 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 and does not require readers to reference information contained in previous UWMP updates.

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 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 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, among other things, additional requirements for Water Shortage Contingency Plans (WSCPs), expansion of dry year supply reliability assessments to a five-year drought period, establishment of annual drought risk assessment procedures and reporting, and new conservation targets referred to as "annual water use objectives," which will require retailers to continue to reduce water use beyond the 2020 SB X7-7 targets. 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 Hawthorne District. However, water management does not happen in isolation; there are other planning processes that integrate with the UWMP to accomplish urban planning. Some of these relevant planning documents include relevant city and county General Plans, Water Master Plans, Recycled Water Master Plans, integrated resource plans, Integrated Regional Water Management 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 and county 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.[3]

Chapter 1 - Introduction and Overview

Chapter 2 - Plan Preparation

Chapter 3 - System Description

Chapter 4 - Water Use Characterization

Chapter 5 - SB X7-7 Baseline and Targets

Chapter 6 - Water Supply Characterization

Chapter 7 - Water Supply Reliability Assessment

Chapter 8 - Water Shortage Contingency Planning

Chapter 9 - Demand Management Measures

Chapter 10 - Plan Adoption, Submittal, and Implementation

In addition to these ten 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,[4] 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)

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

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

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 District does not have any independent covered actions. The Hawthorne District purchases imported water from the West Basin Municipal Water District (WBMWD). WBMWD is one of the 27 member agencies of the Metropolitan Water District of Southern California (MWD), which imports water through either the Colorado River Aqueduct, which is owned by MWD, or the California Aqueduct, a facility of the State Water Project, which is owned and operated by the DWR. Discussion of regional self-reliance and reduced reliance on water supplies from the Delta Watershed is available in Appendix 11 of MWD's Draft 2020 UWMP.

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 California Water Service Company (Cal Water) Hawthorne District (also referred to as "District"), which serves drinking water to a population of approximately 44,700 within the City of Hawthorne. This UWMP serves as a foundational planning document and includes descriptions of historical and projected water demands, water supplies, and the resulting reliability during a set of defined water supply conditions over a 20-year planning horizon. This document also describes the actions the District is taking to promote water conservation, both by the District 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 District are available on the California Department of Water Resources (DWR) Water Use Efficiency Data Portal website: https://wuedata.water.ca.gov/. This document includes 10 chapters, which are summarized below.

Chapter 1- Introduction and Overview

This chapter presents the background and purpose of the UWMP, identifies the Plan organization, and provides this lay description overview of the document. For districts that rely on water from the Sacramento-San Joaquin Delta, this section also discusses and demonstrates consistency with the Delta Plan. The District's source of water supply is a combination of groundwater, recycled water, and imported purchased water from West Basin Municipal Water District (WBMWD), which is a member agency of the Metropolitan Water District of Southern California (MWD). Discussion of regional self-reliance and reduced reliance on water supplies from the Delta Watershed is available in Appendix 11 of MWD's Draft 2020 UWMP.

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., City of Hawthorne, County of Los Angeles), and the public.

Chapter 3 - System Description

This chapter provides a description of the Hawthorne District's water system and the service area, including information related to the climate, population, and demographics. The Hawthorne District is located in Los Angeles County. The Hawthorne District has a population of approximately 44,700 and has a moderate climate characterized by warm summers and mild winters. The majority of the 13 inches of average annual precipitation falls between October and May. The service area includes a mixture of low, medium, and high density residential, mixed use, commercial, light and heavy industrial, public facilities, and parks/open space. All water customers are considered urban (i.e., non-agricultural water users).

Chapter 4 - Water Use Characterization

This chapter provides a description and quantifies the Hawthorne District's current and projected demands through the year 2045. The District provides drinking water (also referred to as "potable water") to customers. Water demands refer not only to the water used by customers, but also includes the water used as part of the system's maintenance and operation, as well as unavoidable losses inherent in the operation of a water distribution system. Water demand within the District was approximately 3,905 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 District is projected to increase to 3,958 AFY in 2045, a change of one percent compared to the 2016-2020 average. In dry year periods, water demands are expected to be somewhat higher, potentially up to 4,059 AFY in 2045 during an extended five-year drought.

Chapter 5 - SB X7-7 Baseline and Targets

In this chapter, the Hawthorne District demonstrates compliance with its per capita water use target for the year 2020. The Water Conservation Act of 2009 (Senate Bill X7-7) was enacted in November 2009 and requires the state of California to achieve a 20 percent reduction in urban per capita water use by December 31, 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 Hawthorne District is in compliance with its 2020 water use target of 142 gallons per capita per day (GPCD), having reduced its water use in 2020 to 70 GPCD. The Hawthorne District is not a member of a Regional Alliance and this UWMP provides information on the District's compliance with its SB X7-7 water conservation target as an individual urban retail water supplier only.

Chapter 6 - Water Supply Characterization

This chapter presents an analysis of the Hawthorne District's water supplies, as well as an estimate of water-related energy-consumption. The intent of this chapter is to present a comprehensive overview of the District's water supplies, estimate the volume of available supplies over the 20-year planning horizon, and assess the sufficiency of the District's supplies to meet projected demands under "normal" hydrologic conditions.

The water supply for the Hawthorne District is a combination of the following sources: groundwater, imported water purchased from the West Basin Municipal Water District (WBMWD), and a small amount of recycled water. There are no new sources of supply currently planned. The Hawthorne District pumps groundwater from the West Coast Subbasin (DWR Basin No. 4-011.03) of the Coastal Plain of Los Angeles Basin. The West Coast Subbasin is an adjudicated groundwater basin with a total annual Allowed Pumping Allocation (APA) of 217,367 acre-feet (AF). The City of Hawthorne leased the management of its municipal water system and has transferred the water right of 1,882 AFY to Cal Water. The Hawthorne District also purchases imported water from the WBMWD, one of the twenty-seven member agencies of the Metropolitan Water District of Southern California (MWD). Based on all available information, the combination of groundwater, purchased imported water, and recycled water supplies is expected to be sufficient to support the Hawthorne District's projected water demand through 2045.

Calculating 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, pumping, conveyance, and distribution for all water entering the distribution system, and does not include the energy used to treat wastewater. The energy intensity for the Hawthorne District is estimated to be 442 kilowatt hours per acre-foot of water (kWh/AF).

Chapter 7 - Water Supply Reliability Assessment

This chapter assesses the reliability of the Hawthorne District's water supplies, with a specific focus on potential constraints such as groundwater supply availability, water quality, and climate change. The intent of this chapter is to identify any potential constraints that could affect the reliability of the District's supply (such as drought conditions) to support the District's planning efforts 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 Hawthorne District expects the available supplies to be sufficient to meet projected demands in all hydrologic conditions, including a five-year drought period, and considering the impacts of climate change. Further, potential water quality issues are not expected to affect the quality of water served to the District's customers, as water quality is routinely monitored and the District is able to make all appropriate adjustments to its treatment and distribution system to ensure only high quality drinking water is served.

Chapter 8 - Water Shortage Contingency Planning

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

Chapter 9 - Demand Management Measures

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

Chapter 10 - Plan Adoption, Submittal, and Implementation

This chapter provides information on a public hearing, the adoption process for the UWMP and WSCP, the adopted UWMP and WSCP submittal process, plan implementation, and the process for amending the adopted UWMP and WSCP. Prior to adopting the Plan, Cal Water held a formal public hearing to present information on its Hawthorne District UWMP and WSCP on June 22, 2021. This UWMP and the corresponding WSCP were submitted to DWR within 30 days of adoption and by the July 1, 2021 deadline.

Chapter 2
Plan Preparation

This chapter discusses the type of Urban Water Management Plan (UWMP or Plan) the Hawthorne District (also referred to herein as "District") has prepared and includes information that will apply throughout the Plan. Coordination and outreach during the development of the Plan is also discussed. Specifically, this chapter includes the following sections:

2.1 Public Water Systems

2.2 Regional Planning

2.3 Individual or Regional Planning and Compliance

2.4 Plan Preparation, Standard Units, and Basis for Reporting

2.5 Coordination and Outreach

2.1 Public Water Systems

The Hawthorne District operates the Public Water System (PWS) listed in Table 2-1. PWSs are the systems that provide drinking water for human consumption and are regulated by the State Water Resources Control Board (SWRCB), Division of Drinking Water. 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 of water supplied) for submitting an UWMP.

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
CA1910047	Hawthorne	6,216	3,947
	TOTAL	6,216	3,947
NOTES: (a) Volumes are in units of AF.			

2.2 Regional Planning

Regional planning can deliver mutually beneficial solutions to all agencies involved by reducing costs for the individual agency, assessing water resources at the appropriate geographic scale, and allowing for solutions that cross jurisdictional boundaries. California Water Service Company (Cal Water) participates in regional water resources planning initiatives throughout California in the regions in which its 25 water districts are located. In the region in which the District is located, groundwater resources are overseen by the California Department of Water Resources (DWR), which serves as Water Master for the West Coast Basin Judgement. Groundwater resources are conjunctively managed with retail water suppliers by the Water Replenishment District of Southern California (WRD) which was created in 1959, largely out of cooperation between the West Coast Basin Water Association and the Central Basin Water Association, with the directive to facilitate artificial replenishment of groundwater as a means of eliminating overdraft and halting seawater intrusion. Regional imported water supplies are conjunctively managed by West Basin Municipal Water District and the Metropolitan Water District of Southern California. Cal Water coordinates its water resources planning with each of these entities.

2.3 Individual or Regional Planning and Compliance (Regional Alliance)

Urban water suppliers may elect to prepare individual or regional UWMPs. The Hawthorne District has elected to prepare an individual UWMP (see Table 2-2).

Urban retail water suppliers may report on the requirements of SB X7-7 (2009 California Conservation Act) individually or as a member of a "Regional Alliance." As described in Chapter 5, the Hawthorne District is a member of a Regional Alliance and this UWMP provides information on the District's compliance with its SB X7-7 water conservation targets both as an individual urban retail water supplier and as a member of a Regional Alliance.

Table 2-2. Plan Identification (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	
		Water Supplier is also a member of a Regional Alliance	
	Regional Urban Water Management Plan (RUWMP)		
NOTES: The Hawthorne District is not a member of a Regional Alliance. Chapter 5 provides information on the District's progress towards meeting its water conservation targets under SB X7-7 as an individual urban retail water supplier.			

2.4 Plan Preparation, Standard Units, and Basis for Reporting

☑ ***CWC § 10608.12 (t)***

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

☑ ***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 § 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)***

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

Per California Water Code (CWC) §10617, the Hawthorne District is an urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. It is therefore obligated under CWC §10621(f) to develop and submit an UWMP to the California Department of Water Resources (DWR) by July 1, 2021. The Hawthorne District is an urban retail water supplier, as defined by CWC §10608.12 (t) and §10617, and as identified in Table 2-3. The Hawthorne District is not a wholesale water supplier.

Annual volumes of water reported in this UWMP are measured in acre-feet (AF) and are reported on a calendar year basis (Table 2-3). Water use and planning data reported in this UWMP for calendar year 2020 cover the full twelve months of the year, as directed by the UWMP Guidelines.

Table 2-3. 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:	

2.5 Coordination and Outreach

☑ ***CWC § 10620 (d) (3)***

Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

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

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

☑ ***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. …

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 the Hawthorne District sought to coordinate with during preparation of this Plan.

2.5.1 Wholesale and Retail Coordination

☑ ***CWC § 10631 (h)***

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

Urban retail water suppliers relying on one or more wholesalers for water supply are required to provide these wholesalers with information regarding projected water supply and demand. The Hawthorne District provided information regarding projected water supply and demand to the wholesale water suppliers listed in Table 2-4.

Table 2-4. 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
West Basin Municipal Water District
NOTES:

2.5.2 Coordination with and Notice to Other Agencies and the Community

☑ ***CWC § 10620 (d) (3)***

Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

☑ ***CWC § 10642***

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

The Hawthorne District coordinated with cities, counties, and other community organizations during preparation of this UWMP. Cal Water provided notice to these entities and the communities it serves 60 days prior to the public hearing it held on June 22, 2021, to present the draft of the UWMP, address questions, and receive comments. Cities and counties receiving the public hearing notification from Hawthorne District as required per CWC §10621 (b) are listed in Table 10-1 in Chapter 10 of this Plan.

Copies of correspondence with other agencies and public notices are provided in Appendix B and Appendix C, respectively.

2.5.3 Coordination with Land Use Authorities

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

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

Cal Water coordinated with Los Angeles County and the City of Hawthorne staff to review and confirm that appropriate land use assumptions were used to develop the UWMP demand projections. Correspondence with land use authorities is included in Appendix B.

Chapter 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.

This chapter provides a description of the City of Hawthorne District (also referred to herein as the "District") water system and service area, including climate, population, demographics, and land uses to help in understanding various elements of water supply and demand. This chapter includes the following sections:

3.1 General Description

3.2 Service Area Boundary Map

3.3 Service Area Climate

3.4 Service Area Population and Demographics

3.5 Land Uses within Service Area

3.1 General Description

California Water Service Company (Cal Water), an investor-owned water utility regulated by the California Public Utilities Commission (CPUC), has operated the City of Hawthorne's water system since 1996 when it entered into a 15-year lease agreement with the city. Cal Water was selected again by the City of Hawthorne in 2012 to operate the system for another 15-year term. The District's water supply is a mix of local groundwater and imported surface water purchased from the Metropolitan Water District of Southern California (MWD). The District operates one groundwater well, two MWD connections, six storage reservoirs, four booster pump stations and 61 miles of pipeline which deliver three to four million gallons of water daily. The District delivers water to residential, commercial, industrial, and governmental customers.

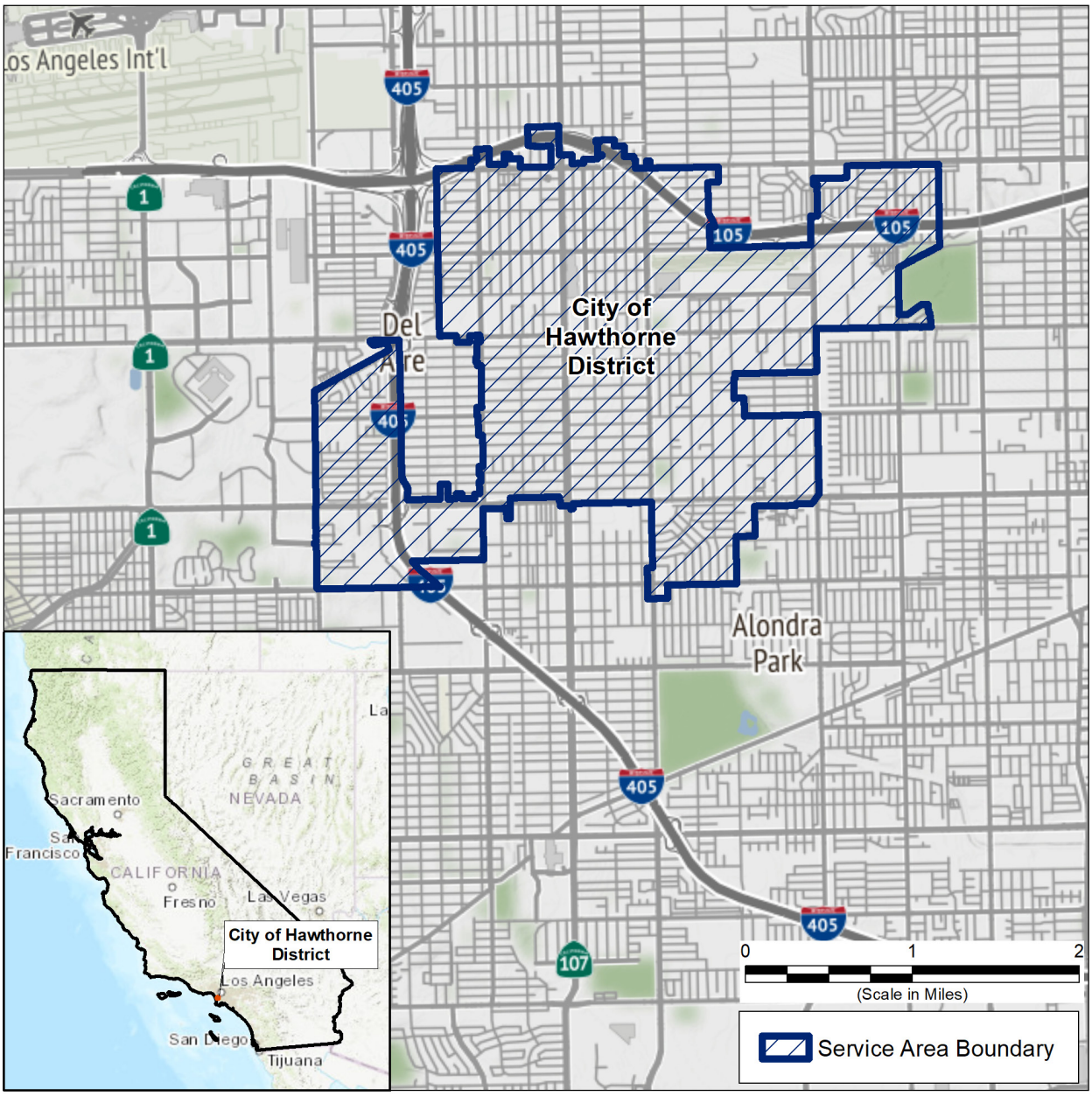
Residential customers account for most of the District's service connections and 78 percent of its water uses. Non-residential water uses account for 17 percent of total demand and distribution system losses account for 5 percent.

3.2 Service Area Boundary Map

Figure 3-1 shows the location of the District and its current service area boundaries. The District is in the southwest corner of the Los Angeles coastal plain, approximately twenty miles from downtown Los Angeles. The service area covers approximately three-square miles, encompassing half of the area of City of Hawthorne. The system is bounded on the north by the Cities of Lennox and Inglewood, on the east and the west by areas of Los Angeles County and the City of Gardena, and on the south by the City of Lawndale. Major transportation links for the District include the San Diego Freeway (Interstate 405) and the Century Freeway (Interstate 105) that run to the west of the District and the north of the District, respectively. El Segundo and Hawthorne Boulevard intersect near the middle of the District. The Los Angeles International Airport (LAX) is less than four miles northwest of the District.

The District is built upon the alluvial deposits adjacent to the beaches of Santa Monica Bay. Major geologic features of the region include the Newport-Inglewood Fault system, which lies on the eastern boundary of the District. The Newport-Inglewood Fault has been identified as one of the most dangerous faults in the Los Angeles area. Major earthquakes occurring on this fault have the potential to disrupt water service to the area.

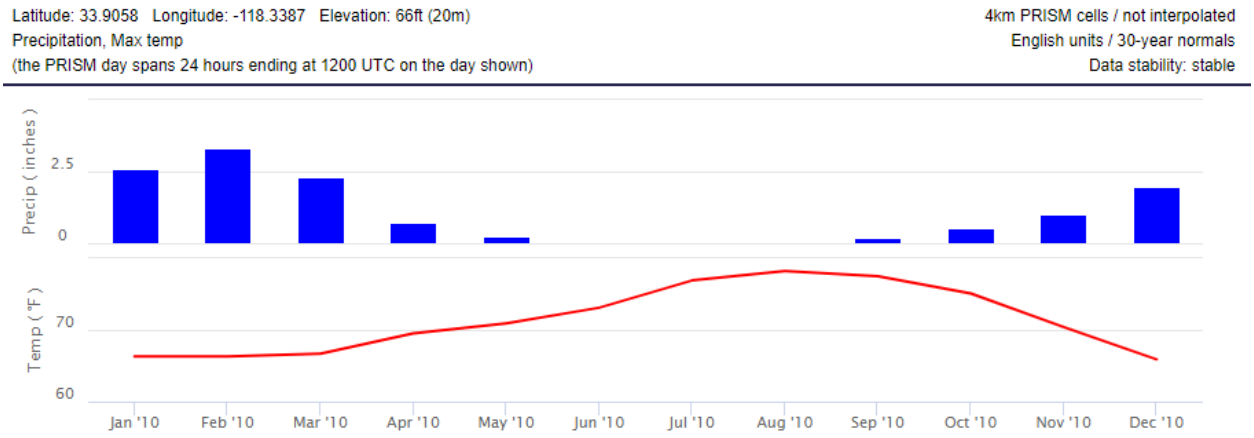
Figure 3-1. District Location and Service Boundaries



3.3 Service Area Climate

The District's climate is characterized by warm summers and mild winters (see Figure 3-2).[5] Most rainfall occurs between October and May. Precipitation totals in the summer months are negligible. On average, the District receives 13 inches of rainfall annually. Maximum daily air temperature averages 76 degrees Fahrenheit during the summer months. In the winter, it averages 66 degrees Fahrenheit.

Figure 3-2. 30-Year Normals, Precipitation and Maximum Daily Air Temperature



Based on a review of data downloaded from the Oregon State PRISM dataset for 1895 to 2019, rainfall varies significantly from year-to-year, as it does in most of California.[6] The standard deviation in annual rainfall is 5 inches, or 38 percent of average annual rainfall.[7] Consecutive years of below average rainfall are fairly common. Since 1895, runs of below average rainfall lasting three or more years have occurred nine times and runs lasting five or more years have occurred three times. The longest of these runs lasted six years, from 2011 through 2016. The period 2006 through 2009 also experienced below average rainfall. Thus rainfall for ten out of the eleven of the years from 2006 through 2016 was below average. While rainfall in the region is highly variable, there has been no statistically significant trend in the mean or variance of annual rainfall since 1895.

[5] Precipitation and temperature data downloaded from: https://prism.oregonstate.edu/explorer/. These data represent a 30-year period from 1980 through 2010. The x-axis reflects the end of the 30-year time series.
[6] Downloaded from: https://prism.oregonstate.edu/explorer/. The x-axis reflects the end of the 30-year time series.
[7] Standard deviation measures the typical or average year-to-year variation in annual rainfall amount. Thus, it is typical for annual rainfall to fluctuate significantly in the District.

The District's climate has been warming. Since 1895, average daily temperature has increased at an average rate of 0.041 degrees Fahrenheit per year. Mean annual temperature for 2010-2019 was 4.7 degrees Fahrenheit higher than for 1900-1909.

3.4 Service Area Population and Demographics

It is estimated that the District's service area population was 44,690 in 2020.

The District estimates its service area population using Census Block population counts from decadal Census data. The decadal Census estimates are converted to average population per single- and multi-family service, which are applied to service counts for years between the decadal Censuses. This method is similar to the approach used by the California Department of Water Resources (DWR) Population Tool and population estimates generated by the two methods have been shown to differ by less than a percent in most cases.[8]

Current and projected service area population are shown in Table 3-1. Projected population and service connections are based on census tract level population, housing, and employment projections developed by the Southern California Association of Governments (SCAG).[9]

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

Population Served	2020	2025	2030	2035	2040	2045
	44,690	45,229	45,742	46,172	46,606	47,046
NOTES:						

Demographics for City of Hawthorne are summarized in Table 3-2. These data are from the U.S. Census American Community Survey 2019 5-Year Estimates.[10] Relative to the rest of California, the population in the City of Hawthorne is younger and more racially diverse. Educational attainment is lower than for the state as a whole, as is median household income.

The stock of housing in the City of Hawthorne is older than for California as a whole. Only thirteen percent of homes were built after 1990 compared to twenty-five percent for all of California. Homes built after 1990 are more likely to have plumbing fixtures that are compliant with state and federal water and energy efficiency standards.

[8] California Water Service, 2016. 2015 Urban Water Management Plan: City of Hawthorne District, dated June 2016.
[9] Southern California Association of Governments (2012). Regional Transportation Plan 2012-2035, Adopted April 2012.
[10] U.S. Census Bureau, 2019. 2015-2019 American Community Survey 5-year Estimates, dated 2019. Retrieved from: https://data.census.gov/cedsci/.

Table 3-2. Demographic and Housing Characteristics

Demographics	City of Hawthorne	California
Median Age (years)	33.2	36.5
Racial Makeup (%)		
White	39.1	63.8
Black or African American	26.4	7.0
American Indian and Alaska Native	1.6	1.9
Asian	9.1	16.7
Native Hawaiian	0.9	0.8
Some other race	27.4	15.1
Hispanic or Latino (of any race) (%)	54.8	39.0
Educational Attainment (%)		
Bachelor's Degree or Higher	22.3	33.9
Primary Language Spoken at Home (%)		
English Only	76.1	82.2
Limited English-Speaking Households	12.1	8.9
Median Household Income (%)	54,215	75,235
Population below Federal Poverty Level (%)	15.4	13.4
Housing	City of Hawthorne	California
Median Year Built	1966	1975
Year Housing Built (%)		
2010 or Later	2.8	3.5
2000 to 2009	3.4	11.2
1990 to 1999	7.2	10.9
Before 1990	86.7	74.5

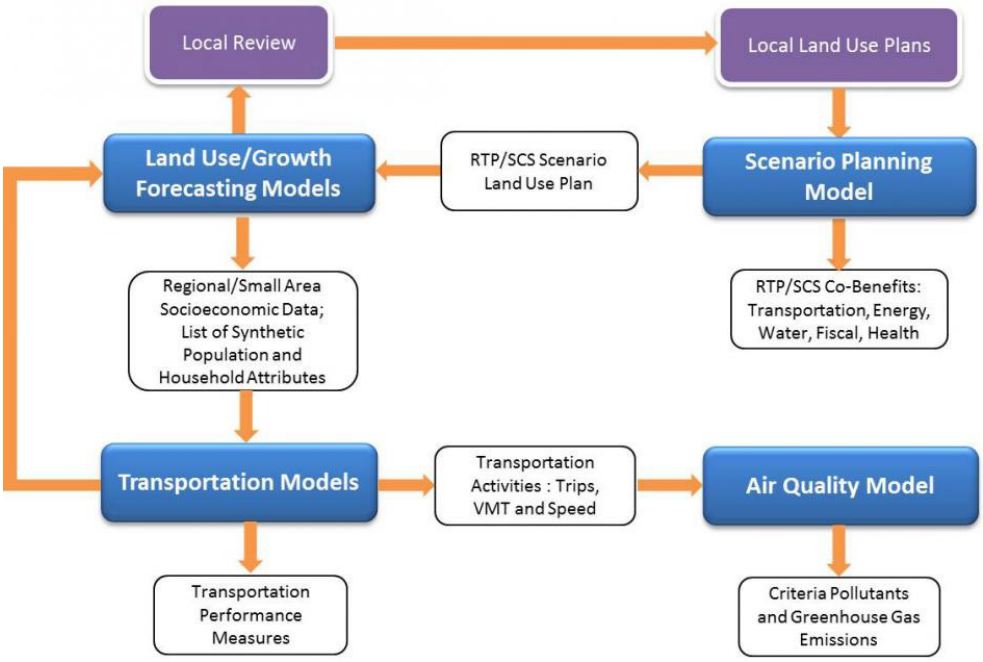
3.5 Land Uses within Service Area

Current land uses within the District is a mixture of low, medium, and high density residential, mixed use, commercial, light and heavy industrial, public facilities, and parks/open space. A

map showing General Plan land use designations for City of Hawthorne is provided in Appendix D.

The District's population and service growth projections are tied to Southern California Association of Governments (SCAG) census tract level projections of population, housing, and employment. These projections, in turn, are developed by SCAG through detailed land use, demographic, and transportation modeling. This modeling covers the entirety of the SCAG region which spans six counties (Imperial, Los Angeles, Riverside, San Bernardino, and Ventura) and 191 cities. The SCAG modeling framework is depicted in Figure 3-3.

Figure 3-3. SCAG Integrated Modeling and Forecasting Framework



Within this integrated modeling and forecasting system, SCAG's Scenario Planning Model (SPM) serves as a conduit between local land use planning information and the SCAG modeling framework by delivering locally vetted data and plans for use in the key SCAG models. This helps to ensure that regional plans are consistent with local data and policy inputs. SCAG works collaboratively with the region's local jurisdictions to develop the land use inputs that feed into its regional, subarea, and local forecasts.

SCAG develops socioeconomic estimates and growth projections including population, households, and employment for over 11,000 small areas called Transportation Analysis Zones (TAZ). Further, SCAG apportions the TAZ projections to the census tracts that span the region. The population, household, and employment projections used by the District to forecast service

area population and service connections tie back to these SCAG census tract land use and growth projections.

Chapter 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.

This chapter provides a description and quantifies the City of Hawthorne District's (also referred to herein as the "District") past, current, and projected water uses through 2045. For the purposes of the Urban Water Management Plan (UWMP or Plan), the terms "water use" and "water demand" are used interchangeably. This chapter is divided into the following subsections:

4.1 Non-Potable Versus Potable Water Use

4.2 Past, Current, and Projected Water Uses by Sector

4.3 Climate Change Considerations

Appendix E provides additional information and data related to the development of the water demand projections presented in this chapter.

4.1 Non-Potable Versus Potable Water Use

This Plan maintains a clear distinction between recycled, potable, and raw water uses and supplies. Recycled water is addressed comprehensively in Chapter 6, but a summary of recycled water demand is included in Table 4-3 of this chapter. The primary focus of this chapter is the historical and projected potable water uses in the District.

4.2 Past, Current, and Projected Water Uses by Sector

☑ ***CWC § 10631 (d)***

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.

4.2.1 Past and Current Water Use

Table 4-1 shows water use in 2016-2020 by use type (referred to as "sector" in CWC § 10631). Water use has been decreasing in the District since the mid-2000s. Several factors have contributed to this reduction. First, water rates over this period increased in real (inflation-adjusted) terms, supplying stronger financial incentives to use water efficiently. Second, the region invested heavily in conservation through the regional SoCal WaterSmart program. Third, appliance efficiency standards and plumbing codes have contributed to significant improvement over time in the average water use efficiency of the installed base of appliances and plumbing fixtures. For example, a new toilet uses roughly one-third the amount of water as a toilet manufactured in the 1980s while a new clothes washer uses about half the amount of

water as an older washer.[11] Per capita water use in 2020 was 26 percent below its peak in the early 2000s.

Water use in 2020 was 3,852 acre-feet (AF). Residential customers accounted for most of the District's service connections and 78 percent of its water uses. Non-residential water uses accounted for 17 percent of total demand, while distribution system losses accounted for 5 percent.

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 (a)				
			2016	2017	2018	2019	2020
Single Family		Drinking Water	1,627	1,626	1,650	1,596	1,689
Multi-Family		Drinking Water	1,345	1,354	1,352	1,285	1,302
Commercial		Drinking Water	580	596	665	654	577
Institutional/Gov't		Drinking Water	75	74	83	63	62
Industrial		Drinking Water	15	17	18	23	26
Other Potable		Drinking Water	11	13	111	61	1
Landscape	(b)	Drinking Water	0	0	0	0	0
Losses	(c)	Drinking Water	260	216	113	188	194
		TOTAL	3,913	3,896	3,993	3,871	3,852

NOTES:
(a) Volumes are in units of AF.
(b) District's billing system does not track this use type separately from other use types.
(c) Real and apparent losses.

4.2.2 Projected Water Use

Projected water use through 2045 is summarized in Table 4-2. Projected water use is estimated as a function of expected service growth and a forecast of average water use per service for each of the use types shown in the table. As discussed in Chapter 3, population and service growth projections are tied to census tract level population, housing, and employment projections developed by the Southern California Association of Governments (SCAG).[12]

[11] Water Research Foundation, 2016. Residential End Uses of Water, Version 2, prepared by DeOreo, William B., Peter Mayer, Benedykt Dziegielewski, and Jack Kiefer, dated April 2016.
[12] https://scag.ca.gov/data-tools-forecasting

As described later in the chapter, average water use per service is adjusted over the forecast period to account for anticipated reductions in water use due to the ongoing effects of appliance standards and plumbing codes, the District's conservation and customer assistance programs, and growth in the inflation-adjusted cost of water service and household income. These factors, in combination, are projected to offset the projected increase in water use from service and population growth.

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

Use Type	Additional Description *(as needed)*	Projected Water Use (a)				
		2025	2030	2035	2040	2045
Single Family		1,706	1,709	1,728	1,741	1,770
Multi-Family		1,286	1,278	1,282	1,289	1,302
Commercial		544	521	505	494	486
Institutional/Gov't		62	59	57	55	54
Industrial		26	26	26	26	26
Other Potable		3	3	3	3	3
Landscape	(b)	0	0	0	0	0
Losses	(c)	204	215	217	220	222
TOTAL		3,830	3,811	3,817	3,828	3,863

NOTES:
(a) Volumes are in units of AF.
(b) District's billing system does not track this use type separate from other use types.
(c) Real and apparent losses.

Future water demands are expected to be comprised both potable and recycled water use, as shown in Table 4-3. Current and projected recycled water use is discussed in Chapter 6.

Table 4-3. Total Gross 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*	3,852	3,830	3,811	3,817	3,828	3,863
Recycled Water Demand *From DWR Table 6-4*	95	95	95	95	95	95
Optional Deduction of Recycled Water Put Into Long-Term Storage						
TOTAL WATER USE	3,947	3,925	3,906	3,912	3,923	3,958

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

4.2.3 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.

Table 4-4 shows distribution system water losses for the previous five years. 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 "water loss audit reports"). The water loss audit reports the District submits to DWR provide the basis for the 2016-2019 estimates shown in Table 4-4 and are available through DWR's Water Use Efficiency Data Portal.[13] The District's 2020 water loss audit report had not been completed at the time this Plan was prepared.[14] The 2020 estimate shown in Table 4-4 is therefore drawn from the District's preliminary draft water loss audit results.

Table 4-4. Last Five Years of Water Loss Audit Reporting (DWR Table 4-4)

Reporting Period Start Date	Volume of Water Loss (a)
01/2016	260
01/2017	216
01/2018	113
01/2019	188
01/2020	194
NOTES: (a) Volumes are in units of AF.	

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

[14] The District's regulatory deadline for filing its 2020 water loss audit report to the state is October 1, 2021.

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.

4.2.4 Future Water Savings in Projected Water Use

☑ ***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.

As affirmed in Table 4-5, both future water savings (discussed below) and lower income residential demands (discussed in Section 4.2.5) are included in the projections of future water use.

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
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES:	

As noted above, the District has adjusted the forecast of average water use per service for the effects of appliance standards and plumbing codes, conservation programs, and increases in the real cost of water service and household income. These adjustments are described below.

The District uses forecasts of per capita water savings from appliance standards and plumbing codes prepared for DWR to adjust its projections of average water use per service.[15] These forecasts incorporate the effects of the following codes and regulations:

- Assembly Bill (AB) 715, enacted in 2007, requires that any toilet or urinal sold or installed in California on or after January 1, 2014 cannot have a flush rating exceeding 1.28 and 0.5 gallons per flush, respectively. AB 715 superseded the state's previous standards for toilet and urinal water use set in 1991 of 1.6 and 1.0 gallons per flush, respectively. On April 8, 2015, in response to the Governor's Emergency Drought Response Executive Order (EO B-29-15), the California Energy Commission approved new standards for urinals requiring that they not consume more than 0.125 gallons per flush, 75 percent less than the standard set by AB 715.
- Water use standards for residential and commercial clothes washers and dishwashers are established by the U.S. Department of Energy through its authority under the federal Energy Policy and Conservation Act. Water use efficiency is summarized by the water factor for the appliance which measures the gallons of water used per cycle per cubic foot of capacity. A typical top-loading residential clothes washer manufactured in the 1990s had a water factor of around 12. In 2015, the allowable water factor for top- and front-loading residential clothes was reduced to 8.4 and 4.7, respectively. In 2018, water factor standard for top-loading residential clothes washers will be reduced to 6.5. In 2010 the allowable water factor for top- and front-loading commercial clothes washers was reduced to 8.5 and 5.5, respectively. The maximum water factor for Energy Star compliant top- and front-loading washers is 3.7 and 4.3, respectively. The U.S. Environmental Protection Agency estimates that Energy Star washers made up at least 60 percent of the residential market and 30 percent of the commercial market in 2011.[16] An Energy Star compliant washer uses about two-thirds less water per cycle than washers manufactured in the 1990s. Federal dishwasher water use efficiency standards were last updated in 2013. The maximum water use for standard and compact sized dishwashers is 5.0 and 3.5 gallons per cycle, respectively.
- New construction and renovations in California are now subject to CalGreen Code requirements. CalGreen includes prescriptive indoor provisions for maximum water consumption of plumbing fixtures and fittings in new and renovated properties. CalGreen also allows for an optional performance path to compliance, which requires an overall aggregate 20 percent reduction in indoor water use from a calculated baseline using a set of worksheets provided with the CalGreen guidelines.

[15] M.Cubed, 2016. Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor GPCD, technical memorandum prepared for the California Department of Water Resources, dated August 2016.
[16] EPA Energy Star Unit Shipment and Market Penetration Report Calendar Year 2011 Summary.

- Senate Bill (SB) 407, enacted in 2009, mandates that all buildings in California come up to current State plumbing fixture standards within this decade. This law establishes requirements that residential and commercial property built and available for use on or before January 1, 1994 replace plumbing fixtures that are not water conserving, defined as "noncompliant plumbing fixtures." This law also requires effective January 1, 2017 that a seller or transferor of single-family residential property show to the purchaser or transferee, in writing, the specified requirements for replacing plumbing fixtures and whether the real property includes noncompliant plumbing. Similar disclosure requirements went into effect for multi-family and commercial transactions January 1, 2019. SB 837, passed in 2011, reinforces the disclosure requirement by amending the statutorily required transfer disclosure statement to include disclosure about whether the property follows SB 407 requirements.

The District's 2015 Conservation Master Plan forms the basis for the forecast of water savings from conservation programs. Cal Water used the Alliance for Water Efficiency's Water Conservation Tracking Tool to estimate expected water savings from planned program implementation.[17]

Projected increases in water service costs and household income form the basis for the adjustments to average water use due to changes in the real cost of water service. The forecast uses the historical rate of increase in District water rates to project future water service costs. It uses Caltrans income projections for Los Angeles County to estimate changes in household income. It uses empirically derived estimates of price and income demand elasticity to adjust future water demand for changes in these variables.[18]

Table 4-6 shows the total water savings from plumbing codes and appliance standards, conservation programs, and increases in the real cost of water service.

Table 4-6. Future Conservation Savings (AF)

2025	2030	2035	2040	2045
101	193	231	266	277

[17] Alliance for Water Efficiency Water Conservation Tracking Tool: https://www.allianceforwaterefficiency.org/resources/topic/water-conservation-tracking-tool

[18] M.Cubed, 2018. California Water Service 2020 Test Year Sales Forecast: 2018 General Rate Case, prepared for California Water Service by M.Cubed, dated January 2018.

4.2.5 Water Use by Lower Income Households in Water Use Projections

☑ ***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.

California Senate Bill No. 1087 (SB 1087), Chapter 727, passed in 2005, amended Government Code § 65589.7 and CWC § 10631.1. This law requires that local governments supply a copy of their adopted housing element to water and sewer providers. Additionally, it requires that water providers grant priority for service allocations to developments that include housing units for lower income families and workers. The UWMP Act requires that water providers estimate water demands by lower income single and multi-family households.

Cal Water must serve all development that occurs within its service area, regardless of the income level of the future residents. Cal Water does not keep records of the income level of its customers and does not discriminate when supplying water to any development. It is the responsibility of the city or county with land use authority over a given area to approve or not approve developments within Cal Water's service areas. Cal Water has a Customer Assistance Program (CAP) to help with water service affordability. CAP discounts the monthly service charge of qualifying lower income households.

Table 4-7 shows projected water use by lower income households. These demands are part of the projected residential water use in Table 4-2. Cal Water used the City of Hawthorne's General Plan Housing Element to estimate the number of lower income households which is the basis for the estimates in Table 4-7.[19]

Table 4-7. Residential Demands of Lower Income Households (AF)

2025	2030	2035	2040	2045
1,496	1,494	1,505	1,515	1,536

[19] City of Hawthorne 2013-2021 Housing Element, Table 7. Accessed from https://static1.squarespace.com/static/52ec83cee4b032691e28b3ce/t/57bf1590f7e0aba6bba36a11/1472140689474/plan_notices-HousingElement2013-2021Final.pdf

4.2.6 Characteristic Five-Year Water Use

☑ ***CWC § 10635(b)(3)***

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

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

CWC § 10635(b) is a new requirement for 2020 UWMPs. A critical part of this new statutory language is the requirement to prepare a five-year Drought Risk Assessment (see Section 7.5). As a first step, DWR suggests that water suppliers estimate their unconstrained water demand for the next five years (2021-2025). Unconstrained water demand is water use in the absence of drought water use restrictions. Drought conditions cause unconstrained demands to increase. The Drought Risk Assessment presented in Section 7.5 accounts for this increase in unconstrained water demand. Cal Water's demand forecast model separately estimates water use for normal, wet, and dry weather conditions. Table 4-8 shows unconstrained demands for 2021-2025 for normal weather and multiple-dry-year scenarios.

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

Weather Scenario	2021	2022	2023	2024	2025
Multi-Year Dry	3,950	3,942	3,937	3,935	3,930
Normal	3,849	3,842	3,837	3,835	3,830
NOTES: The table shows unconstrained demand (i.e., demand in the absence of drought water use restrictions).					

4.3 Climate Change Considerations

☑ ***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.

Climate strongly influences the level and seasonal pattern of District water demands. Cal Water has analyzed the effect of climate and weather variability on both aspects of demand.[20] Using this information, Cal Water has estimated the effect of alternative climate warming scenarios on future water demand.[21] Table 4-9 summarizes the results of this analysis. It shows that for plausible emission scenarios and corresponding temperature increases, climate change may, on average, increase future District demands by 2 to 3 percent compared to current climate conditions. Two points are worth noting. First, this is the average effect. There is significant variation about the mean. Second, this is a ceteris paribus, or all else equal, result. It assumes existing levels and types of landscaping. However, landscaping choices are partly a function of climate and as the climate changes, so too may these choices. It is reasonable to think households and businesses will adapt their landscaping as the climate warms. This adaptation may mitigate some of the expected demand increase shown in the table.

Table 4-9. Climate Change Effect on Demand

Emissions Scenario	Change in Mean Temperature by 2040 (degree F)	Change from Current Mean Temperature (%)	Effect on Demand (%)
Lower Emissions Scenario (B1)	2.5	3.4%	2.0%
Higher Emissions Scenario (A2)	2.7	3.7%	2.1%
80%ile Temperature Scenario	3.6	4.9%	2.8%

NOTES:
(a) Predicted temperature increases for Southwest United States for alternative emission scenarios reported in Kunkel et al. (2013). Predicted effect on demand derived from weather response models estimated with historical monthly water use, temperature, and rainfall data.
(b) The physical climate framework for the 2013 National Climate Assessment is based on climate model simulations of the future using the high (A2) and low (B1) Special Report Emissions Scenarios (SRES). The A1B emission scenario reflects a middle case between the A2 and B1 scenarios. The 80%ile scenario is the 80th percentile temperature change across the family of emissions scenarios. Further description of emission scenarios can be found at https://www.ipcc.ch/site/assets/uploads/2018/03/sres-en.pdf

[20] A&N Technical Services, 2014. Cal Water Long-Term Water Demand Forecast Model. Report prepared for California Water Service Company. December 2014.
[21] Table 4-9 uses climate scenarios for the southwestern United States. These in turn rely on alternative greenhouse gas emission scenarios. Emissions under scenario A2 are higher than under scenario B2. The 80th percentile scenario is the 80th percentile temperature change for the full suite of emission scenarios. For further information, see Kunkel, K.E, L.E. Stevens, S.E. Stevens, L. Sun, E. Janssen, D. Wuebbles, K.T. Redmond, and J.G. Dobson, 2013. Regional Climate Trends and Scenarios for the U.S. National Climate Assessment. Part 5. Climate of the Southwest U.S., NOAA Technical Report NESDIS 142-5, dated 2013.

Chapter 5
SB X7-7 Baseline and Targets

☑ ***CWC § 10608.24 (b)***

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

☑ ***CWC § 10608.28***

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

(1) Through an urban wholesale water supplier.

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

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

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

(5) By hydrologic region.

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

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

The Water Conservation Act of 2009, also known as Senate Bill (SB) X7-7, requires that urban retail water suppliers reduce their per capita water use by 20 percent by 2020. SB X7-7 defines an urban retail water supplier as "a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes" (CWC § 10608.12). The City of Hawthorne District meets both criteria. The state will assess each urban retail water supplier's 2020 per capita water use against the target it established in its 2015 urban water management plan (UWMP).

This chapter demonstrates the District's compliance with its SB X7-7 per capita water use target and includes the following sections:

5.1 Wholesale Suppliers

5.2 Updates to the 2015 UWMP Calculations

5.3 Service Area Population

5.4 Baseline Periods, Baseline GPCD, and Confirmed SB X7-7 2020 Target

5.5 Demonstration of Compliance with SB X7-7 2020 Target

5.6 Demonstration of Compliance with Regional Alliance SB X7-7 2020 Target

5.1 Wholesale Suppliers

SB X7-7 does not directly apply to wholesale water suppliers. Wholesale suppliers may adopt programs and policies that support SB X7-7 compliance by the retail water suppliers they serve. They may also take part in a Regional Alliance (discussed below) set up to satisfy SB X7-7 requirements on a regional basis. As discussed in Chapter 2, the District is not a wholesale water supplier.

5.2 Updates to the 2015 UWMP Calculations

Urban retail water suppliers may update or correct the water use and population data they used to set their 2020 target in their 2015 UWMP. The District has not made any changes to these data.

5.3 Service Area Population

Service area population estimation must satisfy the requirements in Methodology 2 – Service Area Population – of DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. California Water Service Company (Cal Water)'s population estimation method is similar to the method used by DWR's Population Tool.[22] DWR reviewed and accepted Cal Water's population estimation method as part of the review of its 2015 UWMPs. Cal Water used this method to estimate the District's 2020 service area population. As reported in Chapter 3, the District's population was 44,690 in 2020.

[22] Cal Water estimates service area population using census block population data with the LandView 5 and MARPLOT software programs. In census years, the method estimates service area population using the population counts of census blocks with centroids falling within the District's service boundary. In off-census years, the method estimates population by adjusting the census year estimates for changes in the number of single- and multi-family service connections and dwelling units. As shown in the District's 2015 UWMP, estimates prepared using this method and DWR's Population Tool typically differ by less than a percent. Cal Water prefers using its method to be consistent with its other planning documents.

5.4 Baseline Periods, Baseline GPCD, and Confirmed SB X7-7 2020 Target

Table 5-1 shows the District's 5- and 10-year baseline periods, its baseline gallons per capita per day (GPCD) for these periods, and its confirmed 2020 target. The data used to calculate the baseline and target GPCD values are provided in Appendix F.

Table 5-1. SB X7-7 Baselines and Targets Summary (DWR Table 5-1)

Baseline Period	Start Year	End Year	Average Baseline GPCD	Confirmed 2020 Target GPCD
10-15 year	1997	2006	99	142
5 Year	2003	2007	99	
NOTES:				

5.5 Demonstration of Compliance with SB X7-7 2020 Target

Service area population and water use in 2020 were 44,690 and 3,852 AF, respectively. There was also 338 AF of indirect recycled water use in 2020, resulting in gross water use of 3,514 AF and per capita gross water use of 70 GPCD. This is less than target GPCD, as shown in Table 5-2. Supporting population and water use data are in Appendix F.

Table 5-2. SB X7-7 2020 Compliance (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)*		
70			142	Yes
NOTES:				

5.6 Demonstration of Compliance with Regional Alliance SB X7-7 2020 Target

Urban retail water suppliers may report on the requirements of SB X7-7 individually or as a member of a "Regional Alliance." The City of Hawthorne District is not a member of a Regional Alliance and this UWMP provides information on the City's compliance with its SB X7-7 water conservation target as an individual urban retail water supplier only.

Chapter 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 chapter provides a description of the Hawthorne District's (also referred to herein as the "District") current water supplies, including a discussion of their purchased water, the underlying groundwater basins and their management, and potential supply sources, such as surface water, stormwater, and recycled water, as well as assessment of the energy intensity used to operate the District's treatment and distribution system. This chapter includes the following sections:

6.1 Purchased Water

6.2 Groundwater

6.3 Surface Water

6.4 Stormwater

6.5 Wastewater and Recycled Water

6.6 Desalinated Water Opportunities

6.7 Water Exchanges and Transfers

6.8 Future Water Projects

6.9 Summary of Existing and Planned Sources of Water

6.10 Special Conditions

6.11 Energy Intensity

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).

The Hawthorne District purchases imported water from the West Basin Municipal Water District (WBMWD), which is a member agency of the Metropolitan Water District of Southern California (MWD). The WBMWD acts as a secondary wholesale water agency, purchasing the water from MWD and reselling it to the District.

6.2 Groundwater

☑ ***CWC § 10631***

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

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

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

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

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

The Hawthorne District's water supplies are managed in an effort to coordinate with existing regional conjunctive-use programs and to take advantage of economic incentives and the lease market to the fullest extent possible. The District pumps groundwater from the adjudicated West Coast Subbasin.

6.2.1 Basin Description and Status

As shown on Figure 6-1, the Hawthorne District overlies the West Coast Subbasin of the Los Angeles Groundwater Basin (California Department of Water Resources [DWR] Basin No. 4-011.03). A detailed description of the West Coast Subbasin (Basin) is given in California's Groundwater Bulletin 118.[23] The West Coast Subbasin is adjudicated, and the Adjudication Order is included in the following link: https://www.usbr.gov/lc/socal/basinstudies/LA%20Adjudication%20Dec%202014.pdf.

The West Coast Subbasin is bounded on the north by the Ballona Escarpment, an abandoned erosional channel from the Los Angeles River. On the east it is bounded by the Newport-Inglewood fault zone and on the south and west by the Pacific Ocean and consolidated rocks of the Palos Verdes Hills. The surface of the Basin is crossed in the south by the Los Angeles River through the Dominguez Gap, and the San Gabriel River through the Alamitos Gap, both of which then flow into San Pedro Bay. The Basin is a pressurized aquifer groundwater basin with three primary aquifers: the 200-foot Sands, the Silverado Aquifer, and the Lower San Pedro Aquifer. These aquifers have continuity with the Pacific Ocean in Santa Monica Bay. Overdraft of the Basin was caused by excessive pumping due to population growth and rapid industrialization of the Los Angeles Coastal Plain beginning in the 1930s. This overdraft caused lowering of the piezometric head of the aquifers, which increased pumping cost and resulted in seawater intrusion.

The adjudication of the West Coast Subbasin began in 1945 when Cal Water, along with the City of Torrance and the Palos Verdes Water Company filed a lawsuit in Superior Court, Los Angeles County, to quiet title to the groundwater rights and control pumping in the Basin. As part of the effort to resolve the overdraft condition, the WBMWD was formed in 1947 to distribute supplemental MWD imported water to the major water purveyors. In 1955 when pumpers realized the severity of the overdraft, groundwater pumping was limited under an interim agreement. In 1961, the Court rescinded the interim agreement and signed the West Coast Basin Judgment.

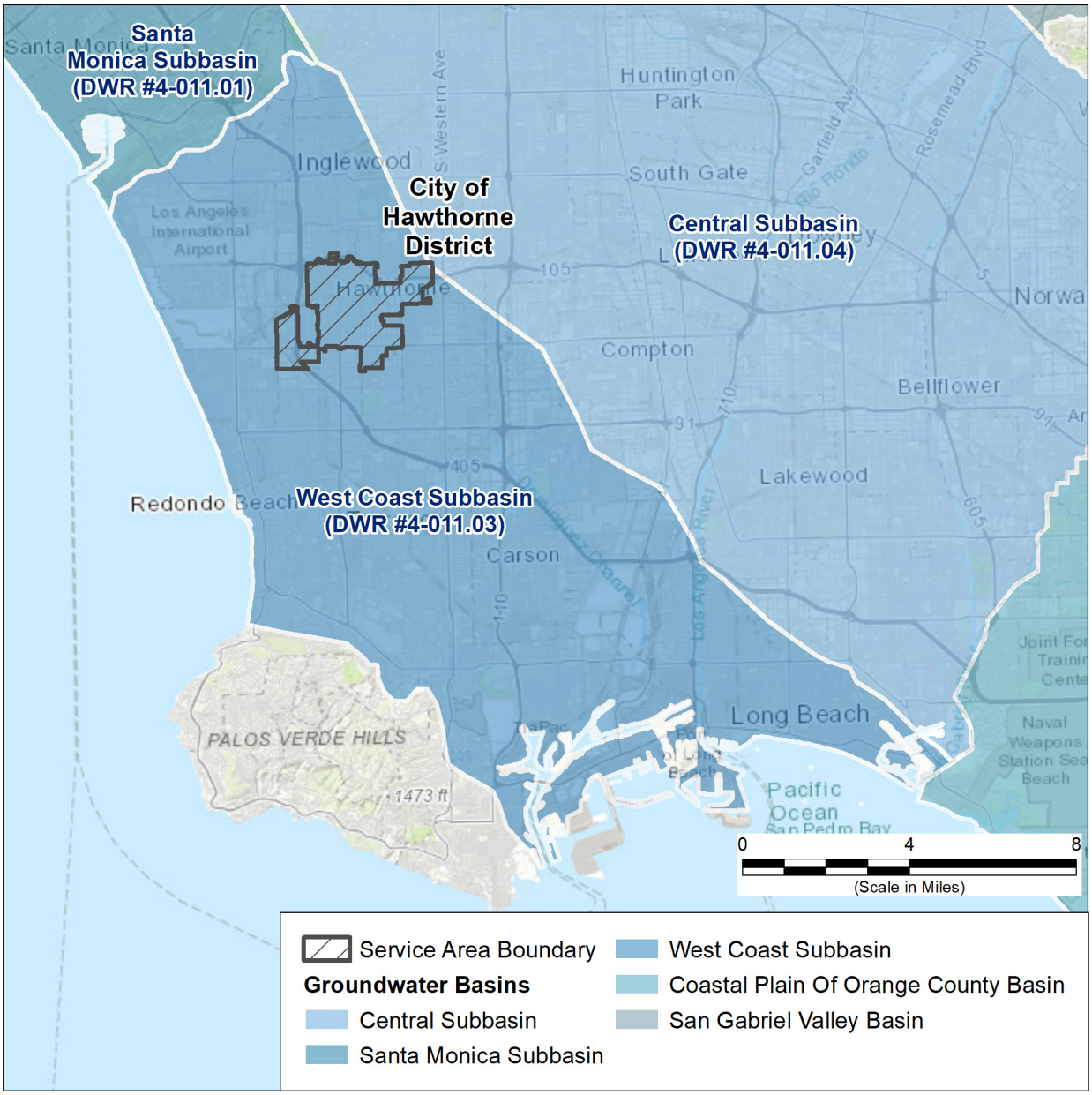
The Water Replenishment District of Southern California (WRD) was created in 1959, largely out of cooperation between the West Coast Basin Water Association and the Central Basin Water

[23] http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf

Association, with the directive to facilitate artificial replenishment of the two basins as a means of eliminating the overdraft and halting seawater intrusion. To quiet the title to and limit production of the groundwater in West Coast Subbasin the WRD filed a lawsuit in Superior Court, Los Angeles in 1962 against more than 700 parties. Later that year after a vast majority of the pumpers approved of the approach, the Court adopted an interim agreement to limit the production from the Basin. In 1965, following extensive meetings by the parties to work out a settlement that was supported by pumpers representing over 75 percent of the Basin's anticipated water rights, the court approved the stipulated judgment for the West Coast Subbasin.

This judgment established an adjudicated water right for each party, but limited the Allowable Pumping Allocation (APA) to 80 percent of the water right, which equals 217,367 acre-feet per year (AFY). The City of Hawthorne has leased both the management of its municipal water system and its APA of 1,882 AFY to Cal Water. The District will also lease unused rights from one or more other Cal Water Districts to maximize the use of existing infrastructure.

Figure 6-1. Groundwater Basin Underlying the Hawthorne District



6.2.2 Groundwater Management

The Sustainable Groundwater Management Act (SGMA) and its subsequent amendments do not apply to adjudicated basins such as the West Coast subbasin. Instead, as the regional groundwater management agency for West Coast and Central subbasins, two of the most utilized groundwater basins in the state of California, the WRD plays an integral role in overall water resource management in southern Los Angeles County. The WRD manages groundwater

for nearly four million residents in 43 cities of southern Los Angeles County. The 420 square mile service area uses about 250,000 AFY of groundwater, which equates to nearly 40 percent of the total demand for water. The WRD ensures that a reliable supply of high quality groundwater is available through its clean water projects, water supply programs, and effective management principles.[24]

6.2.3 Historical Pumping and Supply Sufficiency

The groundwater used by the Hawthorne District is extracted from the underlying West Coast Subbasin. Cal Water has a total of one active and three inactive wells located within the District service area boundaries shown in Figure 6-1. Cal Water is currently going through the capital improvement process of bringing a historically inactive well back online and into active production.

There are five surface storage structures, enabling the groundwater wells to pump to storage during non-peak demand periods and provide peak day demand. The District has sufficient production capacity to supply all of the District's current annual average day and maximum day demand.

As noted above, groundwater is a portion of the supply for the Hawthorne District. Table 6-1 lists the amount of groundwater pumped by Cal Water over the past five years. The available groundwater supply and the purchased water supply have been sufficient to meet all of the District's demands in the past five years and all prior years.

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	West Coast Subbasin	1,617	1,314	1,254	794	493
	TOTAL	1,617	1,314	1,254	794	493
NOTES: (a) Volumes are in units of AF.						

[24] WRD, 2021. Water Replenishment District of Southern California Engineering Survey and Report, dated March 2021.

6.3 Surface Water

Cal Water does not impound or divert surface water to meet demands in the Hawthorne District.

6.4 Stormwater

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

6.5 Wastewater and Recycled Water

☑ ***CWC § 10633***

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

The recycling of wastewater offers several potential benefits to Cal Water and its customers. Perhaps the greatest of these benefits is to help maintain a sustainable supply by utilizing recycled water for appropriate uses (e.g., landscape, irrigation) now being served by potable water in order to reduce potable supply needs. The potential volume of recycled water that can be produced is proportional to the volume of wastewater that is generated by the District, and is discussed in the following sections.

6.5.1 Recycled Water Coordination

In the Hawthorne District, Cal Water relies on and coordinates with the following wastewater agencies for wastewater collection, treatment and recycling:

- West Basin Municipal Water District
- Los Angeles County Sanitation District

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.

The Los Angeles County Sanitation Districts (LACSD) owns, operates, and maintains the sewer system consisting of gravity sewers, pumping stations, and force mains to collect wastewater from Hawthorne District service area. The collected wastewater is discharged to trunk sewers and interceptors owned and operated by the LACSD.

The LACSD's Joint Water Pollution Control Plant provides the wastewater service for the District service area. The Joint Water Pollution Control Plant is the largest of the LACSD's wastewater treatment plants. It provides advanced primary and partial secondary treatment for 350 million gallons per day (MGD) of wastewater and serves a population of approximately 3.5 million people. The treated wastewater is disinfected with chlorine and sent to the Pacific Ocean through a network of outfalls that extend two miles off the Palos Verdes Peninsula to a depth of 200 feet.

Recycled water is provided to the District service area by the WBMWD. The source of the recycled water is treated effluent from the City of Los Angeles' Hyperion Wastewater Treatment Plant (WWTP). The Hyperion WWTP provides secondary treatment using the activated sludge process.

Most of the Hyperion WWTP treated effluent is disposed of through an ocean outfall, but approximately 6 percent of it is sent to WBMWD's main treatment facility, the Edward C. Little Water Recycling Facility (ELWRF). The ELWRF produces five types of water quality levels which include: Title 22 (tertiary treatment), Nitrified, Barrier (West Coast Barrier), Industrial reverse osmosis (RO) (single-pass RO or low pressure boiler feed), and Industrial RO Ultra (dual-pass RO or high pressure boiler feed water). The various types of product recycled water qualities from ELWRF are conveyed through a network of nearly 100 miles of distribution pipelines ranging in diameter from 4 to 60 inches.

Recycled water is currently being used for injection at the seawater intrusion barriers, for industrial operations, and for landscape irrigation. The WBMWD currently provides an estimated 32,200 AFY to over 200 customer sites. The ELWRF will ultimately be one of the

largest water reuse projects in the United States. The project, when fully constructed, has the potential to deliver nearly 70,000 AFY of tertiary treated recycled water.

Estimates for the District wastewater quantity (indoor usage) are shown in Table 6-2. The calculation is based on annualizing 90 percent of January water use in Cal Water's service area. Table 6-3 summarizes the wastewater treatment and discharge volumes within the District's service area, of which there are none.

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)*
Los Angeles County Sanitation Districts	Estimated	3,251	West Basin Municipal Water District	Edward C. Little Water Recycling Facility	No	
Total Wastewater Collected from Service Area in 2020:		3,251				

NOTES:
(a) Volumes are in units of AF.
(b) The volume of wastewater collected from the District service area in 2020 is estimated by annualizing 90 percent of January water use in the District.

Table 6-3. Wastewater 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:											

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

Although the LACSD's Joint Water Pollution Control Plant provides the wastewater service for the Hawthorne District service area, recycled water is provided to the service area by the ELWRF. The source of this recycled water is treated effluent from the City of Los Angeles' Hyperion WWTP.

The recycled water used in the Hawthorne District is collected from communities outside of the District. Recycled water from the ELWRF is used for several purposes including: 1) groundwater replenishment through more than 100 wells, 2) landscape irrigation and 3) industrial process water. The ELWRF serves more than 140 sites including areas in Manhattan Beach, Torrance, Hermosa Beach, and Inglewood. The biggest customers are the Chevron and Mobil oil refineries. In the Hawthorne District service area, the recycled water customers include the City of Hawthorne and Hawthorne School District.

As shown in Table 6-4, recycled water use in the Hawthorne District is projected to remain constant through 2045. Table 6-5 compares the 2015 estimate for 2015 to the 2020 actual recycled water use.

Table 6-4. 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:	West Basin MWD
Name of Supplier Operating the Recycled Water Distribution System:	West Basin MWD
Supplemental Water Added in 2020 (volume)	
Source of 2020 Supplemental Water	

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	Landscape Irrigation	95	Landscape Irrigation	Tertiary	95	95	95	95	95	95
				Total:	95	95	95	95	95	95
				2020 Internal Reuse						

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

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)	150	95
Total	150	95
NOTES: (a) Volumes are in units of AF.		

6.5.4 Actions to Encourage and Optimize Future Recycled Water Use

With respect to the expansion of the recycled water use with the Hawthorne District, Cal Water plans to rely on WBMWD, which is responsible for:

- Determining the technical and economic feasibility of supplying recycled water to the District service area;
- Encouraging the use of and optimizing the use of recycled water in the District service area; and
- Expansion of recycled water lines within the District service area.

The 2009 WBMWD Capital Implementation Master Plan for Recycled Water Systems identified customers in the District service area along with details of the main features of the proposed piping system for distributing the recycled wastewater within the District. Cal Water has in the past and plans in the future to assist WBMWD the expansion of the recycled water system and to connect these customers.

Cal Water encourages the use of recycled water by offering the recycled water at a reduced cost. Additional recycled water customers are expected to be added over time as the distribution system grows and the price difference between recycled and potable water grows. Beyond that, as shown in Table 6-6, there are no specific plans at this point to expand recycled water use in the District.

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

X	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.5.4	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
		Total	
NOTES:			

6.6 Desalinated Water Opportunities

The Hawthorne District's location near the coast makes it a potential candidate for the use of desalinated water, if it was warranted. However, there are no current plans for Cal Water to independently to develop this 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.

6.7.1 Exchanges

Cal Water is not pursuing water exchanges involving the Hawthorne District and other entities at this time.

6.7.2 Transfers

No other transfer options are planned for the Hawthorne District.

6.7.3 Emergency Interties

The Hawthorne District does not have any active interties with any other water systems.. An intertie with Golden State Water Company existed at one time and is under evaluation as to whether it is beneficial to re-establish it.

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.

As shown in Table 6-7, there are no planned future water supply projects or programs that are expected to provide a quantifiable increase to the District's water supply.

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

X	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*				
NOTES:						

6.9 Summary of Existing and Planned Sources of Water

☑ ***CWC § 10631 (b)*** *Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).*

☑ ***CWC § 10631 (b) (2)*** *When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.*

☑ ***CWC § 10631 (b) (4) (D)*** *A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

Table 6-8 summarizes the actual volumes of purchased water and groundwater production for calendar year 2020, while Table 6-9 provides projected volumes. Cal Water projects that by 2025, it will be able extract its total APA from the underlying groundwater basin. Cal Water will be working towards reactivating a historically inactive well. This will allow the District to utilize the entirety of its water rights through 2045. As discussed below in Chapter 7, WBMWD projects that it will be able to serve 100 percent of the demands of its wholesale customers through 2045. Thus, the District's projected purchases from WBMWD are assumed to make up the differences between the normal-year projected demands in Chapter 4 and the projected groundwater and recycled water production volumes.

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

Water Supply	Additional Detail on Water Supply	2020		
		Actual Volume	Water Quality	Total Right or Safe Yield *(optional)*
Groundwater (not desalinated)	West Coast Subbasin	493	Drinking Water	1,882
Purchased or Imported Water	WBMWD	3,359	Drinking Water	
Recycled Water	Edward C. Little Water Recycling Facility	95	Recycled Water	
	Total	3,947		

NOTES:
(a) Volumes are in units of AF.
(b) The City of Hawthorne has leased both the management of its municipal water system and its APA of 1,882 AFY to Cal Water.

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)
Groundwater (not desalinated)	West Coast Subbasin	850	1,882	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580
Purchased or Imported Water	WBMWD	2,980		1,231		1,237		1,248		1,283	
Recycled Water	Edward C. Little Water Recycling Facility	95		95		95		95		95	
Total		3,925		3,906		3,912		3,923		3,958	

NOTES:
(a) Volumes are in units of AF.
(b) The City of Hawthorne has leased both the management of its municipal water system and its APA of 1,882 AFY to Cal Water. The Hawthorne District will also lease unused rights from one or more other Cal Water Districts to maximize the use of existing infrastructure up to 2,580 AFY.

6.10 Special Conditions

6.10.1 Climate Change Effects

Cal Water is committed to incorporating climate change into its ongoing water supply planning. Section 4.3 of this Urban Water Management Plan (UWMP or Plan) includes a description of plausible changes to projected demands under climate change conditions, and Cal Water is currently working to consider the effects of climate change in future demand modeling. The impact of climate change on District supplies is addressed in detail in the key resources described below, which are incorporated into this Plan by reference:

- Cal Water is currently in the process of developing a multi-phase climate change study. Phase 1, which primarily consisted of a literature and tools review of previous and complementary studies, was completed in December 2020.[25] Phase 2 will include District-level vulnerability assessments of Cal Water's facilities and operations, including developing an assessment approach that evaluates climate impacts to Cal Water, identifies asset vulnerabilities, and prioritizes climate risks. Phase 3 will focus on an assessment of climate-driven impacts to water supply resources and demand. Phase 2 is expected to be completed by December 2021. The executive summary of Phase 1 of this study is included in this Plan in Appendix G.

- In 2016, Cal Water completed a study of climate change impacts on a representative subset of its districts, to gain a better understanding of the potential impacts of climate change on the availability of its diverse supplies.[26] The 2016 study relied on the best available projections of changes in climate (temperature and precipitation) through the end of the century to examine how surface water flows and groundwater recharge rates may change. The executive summary of this study is included in this Plan in Appendix G.

6.10.2 Regulatory Conditions and Project Development

Emerging regulatory conditions (e.g., issues surrounding the Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary [Bay-Delta Plan]) may affect planned future projects and the characterization of future water supply availability and analysis. The District does not have any current plans to develop additional supply sources. If the District does move forward with any plans to develop supply projects, emerging regulatory conditions

[25] ICF, 2020. California Water Service Climate Change – Water Resource Monitoring and Adaptation Plan – Phase 1, prepared by ICF, dated December, 17, 2020.
[26] California Water Service, 2016. Potential Climate Change Impacts on the Water Supplies of California Water Service, prepared by Gary Fiske and Associates, Inc. and Balance Hydrologics, Inc., dated January 2016.

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 District does not have any current plans to develop additional supply sources. If the District 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 Intensity

☑ ***CWC § 10631.2***

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

The "Total Utility Approach" as defined by DWR in the UWMP Guidebook 2020 is used to report water-related energy-consumption data for the Hawthorne District. Calendar year 2019 is selected as the one-year reporting period, and utility bills for the associated time period are used as the source for energy consumption data. Utility bills reported the following energy consumption data for the Hawthorne District during calendar year 2019:

$$Total\ Energy\ Consumed\ by\ the\ Hawthorne\ District = 1{,}704{,}307\ kilowatt\ hours\ (kWh)$$

Table 6-10 shows the energy consumed for each acre-foot (AF) of water entering the distribution system in the Hawthorne District, including energy associated with the pumping,

treatment, conveyance, and distribution of drinking water, but not including energy associated with the treatment of wastewater. Based on this, the energy intensity is estimated to be 442 kilowatt hours per acre-foot (kWh/AF).

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

Urban Water Supplier: *Hawthorne District*

Water Delivery Product

Retail Potable Deliveries

Enter Start Date for Reporting Period	1/1/2019	Urban Water Supplier Operational Control		
End Date	12/31/2019			
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)		*3,852*	*0*	*3,852*
Energy Consumed (kWh)		*1,704,307*	*0*	*1,704,307*
Energy Intensity (kWh/volume)		*442.4*	*0.0*	*442.4*

Quantity of Self-Generated Renewable Energy

0 kWh

Data Quality

Metered Data

Data Quality Narrative:

Utility bills for the associated time period are used as the source for energy consumption data.

Narrative:

Total energy consumption represents the energy consumed during pumping, treatment, conveyance, and distribution.

Chapter 7
Water Supply Reliability Assessment

☑ ***CWC § 10620 (f)***

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

☑ ***CWC § 10630.5***

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

This chapter describes the reliability of the Hawthorne District's (also referred to herein as "District") 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, California Water Service Company (Cal Water) has made its best determination of future water supply reliability for the District. This chapter includes the following sections:

7.1 Constraints on Water Sources

7.2 Reliability by Type of Year

7.3 Supply and Demand Assessment

7.4 Water Supply Management Tools and Options

7.5 Drought Risk Assessment

7.1 Constraints on Water Sources

The primary supply sources for the Hawthorne District are purchased water from the West Basin Municipal Utility District (WBMWD) and groundwater pumped from the underlying adjudicated basin (the West Coast Subbasin). Limited use of recycled water is also planned.

The District's groundwater supply is limited by the District's Allowable Pumping Allocation (APA) from the West Coast Subbasin. In addition, Cal Water has identified other potential constraints on supply availability, including water quality and climate change. These constraints, along with associated management strategies are summarized in the following sections.

7.1.1 Supply Availability

The WBMWD Draft 2020 Urban Water Management Plan (UWMP) states that it will be able to serve 100 percent of projected demands in normal, single-dry and multiple-dry years. Because of this, as discussed above in Chapter 6, the projected purchases from WBMWD are assumed to make up the differences between demand and other projected (groundwater and recycled water) supplies. Projected groundwater and recycled water volumes are detailed in Chapter 6. Collectively supplies are projected to be sufficient to meet demands in all year types through the planning horizon.

7.1.2 Water Quality

☑ ***CWC § 10634***

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

Impaired water quality also has the potential to affect water supply reliability. Cal Water has and will continue to meet all state and federal water quality regulations. All drinking water standards are set by the U.S. Environmental Protection Agency (USEPA) under the authorization of the Federal Safe Drinking Water Act of 1974. In California, the 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 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.

A portion of the potable water for this district is treated surface water purchased from WBMWD. There are generally no water quality issues except for seasonal nitrification in the reservoirs. Cal Water takes measures to mitigate this problem by turning over the water in the tanks. Occasionally, flushing may have to be performed and/or additional chlorine must be manually added to one or more of the storage tanks. There have been mixing systems installed in a few reservoirs for this purpose. Additional tank circulation systems may be necessary in the

future. Since this water system is disinfected with chloramines, nitrification is a possibility that is constantly monitored in the distribution system and in storage tanks. No additional treatment is provided by Cal Water.

In addition, Cal Water routinely monitors its wells and 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 Cal Water's website: https://www.calwater.com/waterquality/water-quality-reports/.

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

7.1.3 Climate Change

☑ ***CWC § 10631 (b) (1)***

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

Section 6.10 provides a summary of the assessments of the applicable climate change on supplies that Cal Water has previously performed and those planned for the near term. As discussed in Section 6.10, Cal Water is actively working to further quantify and consider future climate change impacts as part of its ongoing supply and operations planning.

As described in Chapter 6, a portion of the District's supply is water imported by the Metropolitan Water District of Southern California (MWD) that Cal Water purchases from WBMWD. In Section 2.6 of its Draft 2020 UWMP, MWD discusses in detail its multi-pronged approach to considering climate change and states that "Metropolitan continues to integrate current climate change science into its planning efforts." The MWD's extensive efforts to incorporate future impacts of climate change on its supplies ensure that the District's imported supply projections also reflect those impacts.

7.2 Reliability by Type of Year

☑ ***CWC § 10635 (a)***

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

☑ ***CWC § 10631 (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.

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.

For the Hawthorne District, the identification of year types follows that of WBMWD, which in turn is based on the years identified by MWD. Thus, the single dry year in Table 7-1 is 1977 and the five-year dry period is 1988-1992. The average year is based on historical Southern California Association of Governments (SCAG) census tract projections.

As discussed in Section 7.1.1, purchased water from WBMWD is 100 percent reliable regardless of water year type and will make up the differences between demand and other projected supplies (groundwater and recycled water). Collectively supplies are projected to be sufficient to meet demands in all year types through the planning horizon. As such, the projected "volume available" estimates presented in Table 7-1 are equal to the maximum demands across projected years and year types shown in Table 7-2, Table 7-3, and Table 7-4. For example, the

assumed volume available in a representative single dry year in Table 7-1 is equal to the projected single dry year demand for the year 2045 as shown in Table 7-3.

It should be noted that supply volumes in Table 7-1, Table 7-2, Table 7-3, and Table 7-4 do not represent the total amount of purchased water, groundwater, and recycled water supplies that may be available to the District in a given year, but rather reflect the fact that the combination of available supply sources has always been sufficient to meet demands, and is projected to continue to be sufficient to meet demands in the future.

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

Year Type	Base Year	Available Supplies if Year Type Repeats		
			Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		X	Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available		% of Average Supply
Average Year	(c)	3,958		
Single-Dry Year	1977	4,020		
Consecutive Dry Years 1st Year	1988	4,059		
Consecutive Dry Years 2nd Year	1989	4,059		
Consecutive Dry Years 3rd Year	1990	4,059		
Consecutive Dry Years 4th Year	1991	4,059		
Consecutive Dry Years 5th Year	1992	4,059		

NOTES:
(a) Volumes are in units of AF.
(b) As discussed in Section 7.1, total available supplies are considered to be equal to the projected demand under all year types. Therefore, available volumes presented here are the maximum demands across projected years in Tables 7-2, 7-3, and 7-4.
(c) Average year volumes are based on historical SCAG census tract projections.

7.3 Supply and Demand Assessment

Cal Water has relied on the demand modeling described in Chapter 4 to forecast demands for normal, single dry and multiple dry years. As described above, the supplies for the District are expected to be able to serve those demands in all year types through 2045.

Table 7-2 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 7-3

shows the projected supply and demand totals for a single dry year, and Table 7-4 shows the projected supply and demand totals for multiple dry year periods extending five years.

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

	2025	2030	2035	2040	2045
Supply totals *From DWR Table 6-9*	3,925	3,906	3,912	3,923	3,958
Demand totals *From DWR Table 4-3*	3,925	3,906	3,912	3,923	3,958
Difference	0	0	0	0	0
NOTES: (a) Volumes are in units of AF.					

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

	2025	2030	2035	2040	2045
Supply totals	3,987	3,968	3,974	3,985	4,020
Demand totals	3,987	3,968	3,974	3,985	4,020
Difference	0	0	0	0	0
NOTES: (a) Volumes are in units of AF.					

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

		2025	2030	2035	2040	2045
First year	Supply totals	4,025	4,006	4,012	4,023	4,059
	Demand totals	4,025	4,006	4,012	4,023	4,059
	Difference	0	0	0	0	0
Second year	Supply totals	4,025	4,006	4,012	4,023	4,059
	Demand totals	4,025	4,006	4,012	4,023	4,059
	Difference	0	0	0	0	0
Third year	Supply totals	4,025	4,006	4,012	4,023	4,059
	Demand totals	4,025	4,006	4,012	4,023	4,059
	Difference	0	0	0	0	0
Fourth year	Supply totals	4,025	4,006	4,012	4,023	4,059
	Demand totals	4,025	4,006	4,012	4,023	4,059
	Difference	0	0	0	0	0
Fifth year	Supply totals	4,025	4,006	4,012	4,023	4,059
	Demand totals	4,025	4,006	4,012	4,023	4,059
	Difference	0	0	0	0	0

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

7.4 Water Supply Management Tools and Options

☑ ***CWC § 10620 (f)***

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

Cal Water coordinates on an ongoing basis with all relevant agencies in the region to optimize the use of regional water supplies.

Cal Water is currently in the process of developing multiple regional water supply reliability studies using integrated resource planning practices to create a long-term supply reliability strategy through 2050 for Cal Water districts throughout California. The studies will create long-term strategies to address a wide range of water supply challenges including climate change, new regulatory requirements (e.g., the Sustainable Groundwater Management Act [SGMA]), and potential growth in demands due to new development. These water supply reliability studies will be completed on a rolling basis over the next several years, with all studies anticipated to be complete by 2024.

Cal Water also has its own aggressive and comprehensive water conservation program that has reduced and will continue to reduce per-capita usage and therefore demands on critical water sources. Cal Water is committed to helping its customers use water efficiently and has

developed a range of water conservation programs to support this goal. To ensure that it is providing the right mix of programs in the most cost-effective manner possible, Cal Water routinely conducts comprehensive conservation program analysis and planning. This is done on a five-year cycle in tandem with the UWMP. Cal Water's Conservation Master Plan provides the basis for the information on the implementation of and expected water savings from Demand Management Measures (DMMs) presented in Chapter 9.

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 Data, Methods, and Basis for Water Shortage Condition

The Drought Risk Assessment (DRA) uses the projected 2021-2025 demands assuming an extended five-year drought over that period. This evaluation considers historical drought hydrology and plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria. As described above, the available supply for each of those years is assumed to equal the demand.

7.5.2 Drought Risk Assessment Water Source Reliability

As described in Chapter 6, imported water purchased from WBMWD, local groundwater, and recycled water are the sources of potable supply for the Hawthorne District. Table 7-5 provides a comparison of the water supply available to the Hawthorne District with the total projected water use for an assumed extended drought period from 2021 through 2025.

Although water shortage conditions in the Hawthorne District are not expected to arise, Cal Water has developed a Water Shortage Contingency Plan (WSCP, Appendix H) to address potential water shortage conditions resulting from any cause (e.g., droughts, impacted distribution system infrastructure, regulatory-imposed shortage restrictions, etc.). The WSCP included as Appendix H identifies a variety of actions that Cal Water will implement to reduce demands in the event of supply shortages of different magnitudes.

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

2021	Total
Total Water Use	4,045
Total Supplies	4,045
Surplus/Shortfall w/o WSCP Action	0
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	

2022	Total
Total Water Use	4,037
Total Supplies	4,037
Surplus/Shortfall w/o WSCP Action	0
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	

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

2023	Total
Total Water Use	4,032
Total Supplies	4,032
Surplus/Shortfall w/o WSCP Action	0
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	

2024	Total
Total Water Use	4,030
Total Supplies	4,030
Surplus/Shortfall w/o WSCP Action	0
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	

2025	Total
Total Water Use	4,025
Total Supplies	4,025
Surplus/Shortfall w/o WSCP Action	0
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	

NOTES:
(a) Volumes are in units of AF.
(b) In general, the District has sufficient supplies to meet demands in all year types and it is not anticipated that WSCP actions will be required in the District during the drought period. However, during state, regional, or extreme circumstances, the WSCP would be implemented to reduce demand.

Chapter 8
Water Shortage Contingency Planning

☑ ***CWC § 10640***

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

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

The Water Shortage Contingency Plan (WSCP) for the Hawthorne District is included in this Urban Water Management Plan (UWMP) as Appendix H. The WSCP serves as a standalone document to be engaged in the case of a water shortage event, such as a drought or supply interruption, and defines specific policies and actions that will be implemented at various shortage level scenarios. The primary objective of the WSCP is to ensure that the District has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. Consistent with CWC §10632, the WSCP includes six levels to address shortage conditions ranging from up to 10 percent to greater than 50 percent shortage, identifies a suite of demand mitigation measures for the District to implement at each level, and identifies procedures for the District to annually assess whether or not a water shortage is likely to occur in the coming year, among other things.

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

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

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	Demand reduction (See Table 8-2)
2	Up to 20%	Demand reduction (See Table 8-2)
3	Up to 30%	Demand reduction (See Table 8-2)
4	Up to 40%	Demand reduction (See Table 8-2)
5	Up to 50%	Demand reduction (See Table 8-2)
6	>50%	Demand reduction (See Table 8-2)
NOTES:		

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?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
1	Other	7%	1. Limit landscape irrigation to specific times 2. Customers must repair leaks, breaks, and malfunctions in a timely manner 3. Restrict or prohibit runoff from landscape irrigation 4. Prohibit application of potable water to outdoor landscapes within 48 hours of measurable rainfall 5. Prohibit use of potable water for washing hard surfaces 6. Lodging establishments must offer opt out of linen service	Yes
1	Other	--	1. Expand Public Information/Media Campaign 2. Water Bill Inserts 3. Promote online water waste reporting 4. Expand Rebates or Giveaways of Plumbing Fixtures and Devices 5. Expand Rebates for Landscape Irrigation Efficiency 6. Expand CII Water Use Surveys 7. Expand Res Water Use Surveys	No
2	Other	13%	1. Continue with Stage 1 restrictions	Yes

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
			and prohibitions except where superseded by more stringent actions. 2. Prohibit the use of non-recirculating systems in all new conveyer car wash and commercial laundry systems 3. Prohibit the use of single pass cooling systems in new connections 4. Restaurants may only serve water upon request 5. No watering of landscape of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development 6. Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	
2	Other	--	1. Continue with Stage 1 actions except where superseded by more stringent actions. 2. Water Efficiency Workshops, Public Events 3. Offer Water Use Surveys	No

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
			4. Provide Rebates or Giveaways of Plumbing Fixtures and Devices 5. Provide Rebates for Landscape Irrigation Efficiency	
3	Other	25%	1. Continue with Stage 1 restrictions and prohibitions except where superseded by more stringent actions. 2. Landscape - Limit landscape irrigation to 1-3 days/week 3. Landscape - Prohibit irrigation of ornamental turf on public street medians with potable water 4. Prohibit Filling Ornamental Lakes or Ponds	Yes
3	Other	--	1. Continue with Stage 1 actions except where superseded by more stringent actions. 2. Home or Mobile Water Use Reports 3. Decrease Frequency and Length of Line Flushing 4. Reduce System Water Loss 5. Increase Water Waste Patrols/Enforcement 6. Implement Drought Rate Structure and Customer Water Budgets (Res)	No

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
			7. Implement Drought Rate Structure and Customer Water Budgets (CII)	
4	Other	32%	1. Continue with Stage 1 restrictions and prohibitions except where superseded by more stringent actions. 2. Prohibit use of potable water for construction and dust control 3. Prohibit use of potable water for street washing 4. Prohibit vehicle washing except with recycled water	Yes
4	Other	--	1. Continue with Stage 1 actions except where superseded by more stringent actions. 2. Promote / Expand Use of Recycled Water	No
5	Other	46%	1. Continue with Stage 1 restrictions and prohibitions except where superseded by more stringent actions. 2. Require net zero demand Increase on new water service connections 3. Prohibit filling of pools 4. Prohibit single-pass cooling systems	Yes
5	Other	--	1. Continue with Stage 1 actions	No

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
			except where superseded by more stringent actions. 2. Require Pool Covers	
6	Other	56%	1. Continue with Stage 1 restrictions and prohibitions except where superseded by more stringent actions. 2. Moratorium on new water service connections 3. Prohibit all landscape irrigation	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)*
NOTES:			

Chapter 9
Demand Management Measures

☑ ***CWC § 10631 (e)***

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

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

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

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

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

(vi) Water conservation program coordination and staffing support.

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

This chapter provides a summary of past and planned demand management measure (DMM) implementation in the City of Hawthorne District (also referred to herein as the "District"), as well as an overview of the expected water savings.

This chapter contains the following sections:

9.1 Demand Management Measures for Wholesale Agencies

Because the District is a retail water supplier, this section does not apply.

9.2 Demand Management Measures for Retail Suppliers

California Water Service Company (Cal Water) centrally administers its conservation programs for all the districts it operates. For purposes of this section, these programs have been grouped in accordance with the DMM categories in CWC §10631(e). These categories are:

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

Following are descriptions of the conservation programs Cal Water operates within each of these DMM categories.

9.2.1 Water Waste Prevention Ordinances

The City of Hawthorne has passed a water conservation ordinance prohibiting the waste of water. A copy of the ordinance is included in Appendix I.

9.2.2 Metering

☑ ***CWC § 526 (a)***

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

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

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

☑ ***CWC § 527 (a)***

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

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

The District meters all service connections and bills customers for water use monthly. Cal Water may install advanced metering infrastructure (AMI) in the future to improve metering accuracy and supply prompt feedback to customers about water use and leaks. Cal Water is currently piloting (AMI) in several districts.

9.2.3 Conservation Pricing

The District's water rates are set by the City of Hawthorne. The city employs a two-part tariff structure comprised of a monthly service charge and a volumetric charge for each hundred cubic feet (CCF) of water use. Effective January 1, 2021, the monthly service charge for a standard 5/8 x 3/4-inch meter was $21.37 and the volumetric charge was $5.2063 per CCF.

9.2.4 Public Education and Outreach

The District's public outreach program is divided into four components, as follows:

Public Information Program – Cal Water operates an extensive public information program to provide information to customers on ways to use water efficiently and to market its conservation programs through multiple media outlets, including the Cal Water website, direct mail and bills, digital media, social media, and email.

School Education Program - Cal Water's school education program includes the Cal Water H2O Challenge, a project-based learning competition for grades 4-6, individual student competitions for grades K-12 and general information and learning materials for students and teachers. Cal

Water deploys its school education program in all its districts. Cal Water H2O Challenge is a project-based competition for classrooms, grades 4-6. The program is offered in partnership with DoGoodery, the California Association of Science Educators (CASE), and the WestEd K-12 Alliance. The program aligns with the Common Core State Standards and the Next Generation Science Standards. The Cal Water H2O Challenge offers a unique opportunity for upper elementary teachers to facilitate their students' learning of standards-based content, while developing the core understanding of environmental principles necessary to becoming science-literate citizens.

Smart Landscape Tune-Up Program – This program provides customers with an irrigation system evaluation and installation of approved efficient irrigation system equipment, such as a smart irrigation controller and high-efficiency sprinkler nozzles. The program also includes irrigation system adjustments and detection and repair of irrigation system leaks. This program is available to all Cal Water customers at no charge.

Residential Customer Portal – Through its residential customer portal, Cal Water provides tailored assistance to each residential customer via customized water-efficiency targets, water savings calculators, and customer-specific recommendations for programs and water-saving tips.

Non-Residential Customer Assistance – Cal Water provides tailored assistance to commercial customers through customized incentives, commercial water surveys, and large landscape water use surveys. The non-residential assistance program helps commercial customers efficiently use water for sanitation/cleaning, heating/cooling, process, and landscape purposes.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

As discussed above, reducing distribution system losses is one of the main focuses of the new Making Water Conservation a California Way of Life regulations. In preparation for these new requirements, Cal Water took part in the California Water Loss Technical Assistance Program (TAP) in both 2016 and 2017. Cal Water annually conducts distribution system audits using the American Water Works Association (AWWA) Free Water Audit Software. It has also developed a Water Loss Control Plan and Water Loss Control Policy to guide future water loss management with respect to:

- Meeting CPUC and state water loss standards and regulations
- Improving audit data and validity scores
- Implementing cost-effective water loss control actions

To coordinate and oversee water loss management actions across its multiple districts, Cal Water has added a Water Loss Program Analyst position to its conservation staff.

9.2.6 Water Conservation Program Coordination and Staffing Support

The CPUC reviews and authorizes Cal Water conservation program and staffing level in a general rate case every three years. Currently, Cal Water has nine full-time conservation positions, as follows:

- Director of Water Resource Sustainability,
- Conservation Program Manager,
- Research, Analytics and Reporting Manager,
- Water Resource Sustainability Analyst,
- Water Loss Program Analyst,
- Three Conservation Program Coordinators, and
- Conservation Assistant.

These staff manage all aspects of Cal Water's conservation programs that are run in 24 districts serving a combined population of 1.8 million people.

9.2.7 Other Demand Management Measures

In addition to the DMM programs described above, Cal Water operates rebate, give-away, and direct installation programs aimed at plumbing fixture replacement and irrigation equipment and landscape efficiency improvements. Following are brief descriptions of each of these DMMs.

High-Efficiency Toilet Replacement – This program replaces old toilets with MaP certified high-efficiency toilets via financial rebates, direct installation, or direct distribution.[27] Current rebate amounts are up to $50/toilet for residential toilet replacement and up to $100/toilet for commercial toilet replacement.

High-Efficiency Urinal Replacement – This program replaces old urinals with high-efficiency urinals meeting the state's 0.125 gallon per flush water use standard via financial rebates and direct installation. While available to all non-residential customers, the program targets sites with higher-than-average bathroom utilization, such as restaurants and office buildings. The current rebate amount is up to $150/urinal.

Clothes Washer Replacement – This program provides a financial rebate to replace an old inefficient clothes washer with a new high-efficiency washer. The program is available to all residential and multi-family customers. The current rebate amount is up to $150/washer.

[27] For information on MaP certified toilets, see: https://www.map-testing.com/.

Residential Conservation Kit Distribution – This program offers residential customers conservation kits featuring a range of water-saving plumbing retrofit devices. The kits are available at no charge and include two high-efficiency showerheads (1.5 gpm), two bathroom faucet aerators (1.0 gpm), one kitchen faucet aerator (1.5 gpd), toilet leak tablets, and an outside multi-function, full-stop hose nozzle.

Smart Irrigation Controller Installation – This program provides a financial rebate for the installation of a smart irrigation controller that automatically adjusts watering schedule in response to changing weather conditions. The current rebate amount is $125/controller for residential customers and $25/station for commercial customers.

High-Efficiency Sprinkler Nozzle Rebate – This program provides a financial rebate for the installation of high-efficiency sprinkler nozzles. This program is available to all Cal Water customers. The current rebate amount is $5/nozzle.

Large Rotary Nozzle Rebate – This program provides a financial rebate for the installation of high-efficiency large rotary nozzles. This program is available to all Cal Water customers. The current rebate amount is up to $30/nozzle toward the nozzle purchase cost and up to $8/spray body toward installation cost, if installed by a C-27 licensed landscape contractor.

Spray Body with Integrated Pressure Regulation and Check Valve Rebate – This program provides a financial rebate for the installation of high-efficiency spray bodies with integrated pressure regulation. This program is available to all Cal Water customers. The current rebate amount is up to $10/body toward the spray body purchase cost and up to $8/spray body toward installation cost, if installed by a C-27 licensed landscape contractor.

Turf Replacement Rebate – This program provides a financial rebate for replacement of turf with approved drought-tolerant landscaping. Cal Water operated this program in 2015/16 as a drought response measure. The program will be re-started as part of Cal Water's irrigation equipment/landscape upgrade program offerings.

Table 9-1 summarizes the DMMs available to District customers at the time this Plan was prepared.

Table 9-1. Cal Water DMMs Available to District Customers

Programs Offered	Customer Eligibility		
	Single-Family	Multi-Family	Commercial
Plumbing Fixture Replacement			
High-Efficiency Toilet Replacement	✓	✓	✓
High-Efficiency Urinal Replacement			✓
High-Efficiency Clothes Washer Rebate	✓	✓	
Conservation Kits	✓	✓	
Irrigation Equipment/Landscape Upgrades			
Smart Irrigation Controller Rebate	✓	✓	✓
High-Efficiency Sprinkler Nozzle Rebate	✓	✓	✓
Large Rotary Nozzle Rebate		✓	✓
Spray Body Rebate		✓	✓
Turf Replacement Rebate	✓	✓	✓
Customer Assistance			
Smart Landscape Tune-Up Program	✓	✓	✓
Residential Customer Portal	✓		
Non-Residential Customer Assistance		✓	✓

9.3 Implementation over the Past Five Years

Implementation of customer DMMs over the past five years is summarized in Table 9-2. The estimated annual and cumulative water savings shown in the table do not include water savings associated with water waste prevention ordinances, conservation pricing, general public information, or distribution system water loss management DMMs. Estimated water savings were calculated with the Alliance for Water Efficiency's Water Conservation Tracking Model.

Table 9-2. Implementation of Customer DMMs: 2016-2020

Indoor Programs	2016 – 2020 Total	Average Annual
Toilets & Urinals (number distributed)	33	7
Clothes Washers (number distributed)	37	7
Conservation Kits (number distributed)	44	9
Outdoor Programs		
Smart Controllers (number distributed)	8	<2
Nozzles & Spray Bodies (number distributed)	0	0
Turf Buy-Back (sq ft removed)	0	0
Residential Assistance Programs		
Surveys/Audits (homes receiving)	4	<1
Non-Residential Assistance Programs		
Surveys/Audits (sites receiving)	0	0
Large Landscape Reports (sites receiving)	0	0
Estimated Water Savings (AF)	8	<2
NOTES: Estimated water savings for 2016-2020. DMMs will continue to generate savings after 2020 for their useful life.		

9.4 Implementation to Achieve Water Use Targets

All the DMMs described above contributed to the District's compliance with its SB X7-7 2020 target GPCD.

9.5 Water Use Objectives (Future Requirements)

CWC §10609 requires that urban retail water suppliers develop new water use objectives that are based on specific standards for certain water use sectors. These water use objectives will not be developed until 2023. Suppliers are encouraged in this UWMP cycle to consider how they will align their conservation management actions in order to meet these future obligations.

The District's conservation program budget is subject to review and approval by the City of Hawthorne through the service contract between Cal Water and the city. In making conservation budget recommendations to the city, Cal Water carefully considers how it will advance multiple objectives, including compliance with the pending water use objectives. Specific objectives identified by Cal Water include:

- Maintaining continuity with and furthering implementation of previously authorized conservation programs.
- Preserving gains in water conservation achieved during the 2013-2017 drought.
- Ensuring Cal Water districts are well-positioned to comply with state regulations and policies pertaining to water conservation, water loss management, and groundwater management, including Executive Order B-37-16, SB 555, and the Sustainable Groundwater Management Act (SGMA).
- Advancing cost-effective water use efficiency alternatives in districts with high water supply costs.

Cal Water developed a scoring methodology to adjust conservation programs and budgets to further these objectives. The methodology specifically considers five distinct conservation policy drivers:

1. State Conservation Standards and Water Use Objectives
2. SGMA Compliance
3. SB 555 Water Loss Management Requirements
4. Commercial, Institutional, and Industrial (CII) Water Management
5. Avoided Water Cost and Affordability

The methodology assigns greater weight to the State Conservation Standards and Water Use Objectives and SGMA Compliance policy drivers, reflecting their importance in terms of overall water resources management.

Scoring for the SGMA Compliance policy driver is based on groundwater basin priority, district dependence on groundwater supply, and basin adjudication status. The highest scores are assigned to districts in unadjudicated and critically overdrafted or high priority basins where groundwater comprises more than 45 percent of the water supply. The City of Hawthorne District operates within an adjudicated groundwater basin. Consequently, this criterion is not anticipated to be an important consideration in future conservation budget recommendations.

Scoring for the State Conservation Standards and Water Use Objectives policy driver is based on four metrics that are used to gauge which districts are most likely to require adjustments to their conservation program mix or level of implementation to comply with the new standards. These metrics are:

1. Residential per capita landscape area
2. Residential per capita turf area
3. Size and number of large residential landscapes
4. Difference between a simulated water use budget and average water use for 2011-15

Residential indoor and landscape water use, and non-residential landscape water use are already relatively low in the District. In 2020, residential water use was less than 75 gallons per person per day, well below average residential water use in the region. Consequently, this criterion is not anticipated to be an important consideration in future conservation budget recommendations.

Scoring for the SB 555 Water Loss Management Requirements policy driver is based on the District's infrastructure leakage index (ILI) from its most recent validated water loss audit. The ILI is a performance indicator of real (physical) water loss from the water distribution system. A high ILI indicates possible distribution system inefficiencies and may also indicate significant water system leakage. Proposed adjustments to funding for water loss management are based on the ILI scoring criteria. The City of Hawthorne has a relatively low ILI and currently real water loss comprises less than three percent of system production. Consequently, this criterion is not anticipated to be an important consideration in future conservation budget recommendations.

Scoring for the CII Water Management policy driver is based on the ratio of CII water uses to total water uses in a district. CII water use currently comprises less than 20 percent of District water sales. Consequently, this criterion is not anticipated to be an important consideration in future conservation budget recommendations.

Scoring for the Avoided Water Cost and Affordability policy driver is based on the District's avoided cost of water supply, as estimated by the California Urban Water Conservation Council (CUWCC)/Water Research Foundation Avoided Cost Model. Most of the District's water supply is high cost imported surface water. Conservation provides a way for the District to further reduce its reliance on this high-cost supply source. Consequently, this criterion is anticipated to be an important consideration in future conservation budget recommendations.

Going forward, Cal Water will use the combination of scores on each policy driver as the basis for proposed adjustments to the District's conservation budget.

Chapter 10
Plan Adoption, Submittal, and Implementation

☑ ***CWC § 10621 (b)***

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

This chapter provides information on the 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. This chapter includes the following sections:

10.1 Inclusion of All 2020 Data

This UWMP includes the water use and planning data for the entire calendar year of 2020, per the UWMP Guidebook 2020.

10.2 Notice of Public Hearing

☑ ***CWC § 10642***

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

Prior to adopting the Plan, California Water Service (Cal Water) held a virtual public hearing to present information on its Hawthorne District (also referred to herein as "District") 2020 UWMP and WSCP on June 22, 2021.[28]

Relevant entities were notified of the UWMP and WSCP review at least 60 days prior to the public hearing, including: (1) cities and counties, and (2) the public. These same entities were noticed again with the specific date, time and location of the hearing at least two weeks prior to the public hearing. The notice to the public, as specified in Government Code 6066, and letters to relevant agencies can be found in Appendix C and Appendix B, respectively.

10.2.1 Notice to Cities and Counties

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

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

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

[28] Restrictions related to the COVID-19 pandemic prevented the District from holding an in-person public hearing as previously planned.

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

City Name	60 Day Notice	Notice of Public Hearing
City of Hawthorne	X	X
County Name	**60 Day Notice**	**Notice of Public Hearing**
Los Angeles County	X	X
Other Agency Name	**60 Day Notice**	**Notice of Public Hearing**
West Basin Municipal Water District	X	X
Los Angeles County Sanitation Districts	X	X
Metropolitan Water District of Southern California	X	X
Water Replenishment of Southern California	X	X
NOTES:		

10.2.2 Notice to the Public

Notification to the public and to cities and counties also provided instructions on how to view the 2020 UWMP and WSCP prior to the hearing, the revision schedule, and contact information of the UWMP and WSCP preparer. A copy of this notice is included in Appendix C.

10.3 Public Hearing and Adoption

☑ ***CWC § 10608.26***

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

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

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

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

☑ ***CWC § 10621 (b)***

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

The deadline for public comments on the UWMP and WSCP was June 22, 2021, the date of public hearing. The final Plan was formally adopted by the City of Hawthorne's City Council and was signed by City of Hawthorne's Mayor, Alex Vargas, on June 22, 2021, and was submitted to California Department of Water Resources (DWR) within 30 days of approval. Appendix J presents a copy of the signed Resolution of Plan Adoption. Appendix B contains the following:

- Letters sent to and received from various agencies regarding this plan, and
- Correspondence between Cal Water and participating agencies.

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

This UWMP and WSCP were submitted to DWR within 30 days of adoption and by the July 1, 2021 deadline. The submittal was done electronically through Water Use Efficiency Data Portal, an online submittal tool. The adopted UWMP and WSCP was also sent to the California State Library and to the cities and counties listed in Table 10-1 no later than 30 days after adoption.

10.5 Public Availability

☑ ***CWC § 10645***

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

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

On or about May 24, 2021, an electronic version of the draft 2020 UWMP and WSCP were made available for review by visiting Cal Water's website: https://www.calwater.com/conservation/uwmp-review/.[29]

[29] Restrictions related to the COVID-19 pandemic prevented the District from making a printed hard-copy available for public review as previously planned.

10.6 Notification of Public Utilities Commission

☑ ***CWC § 10621 (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.

Cal Water is an urban water supplier regulated by the California Public Utilities Commission. Cal Water included the District's 2020 UWMP and WSCP as part of its general rate case filings.

10.7 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 2020 UWMP or WSCP is amended, each of the steps for notification, public hearing, adoption and submittal will also be followed for the amended document.

Appendix A: UWMP Act Checklist

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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 2.4 and Table 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 2.5 and Table 2-4
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 2.5
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 2.5.1
	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 3.3
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.4 and Table 3-1

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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 3.4 and Table 3-2
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Setion 3.4 and Table 3-1
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.5
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	Section 4.2 and Tables 4-1 to 4-3
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 4.2.3
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 Tables 4-5 and 4-6
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 4.2.4
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 4.2.3 and Table 4-4
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 4.2.5 and Table 4-7
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 7.5.1
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	Chapter 5
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.5 and Table 5-2
	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

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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	Section 5.4
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 5.4
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 5.5
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	Chapter 7
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 7.1.1
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	Section 6.9 and Table 6-9
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.8
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
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

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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	Section 6.2
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
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 6.2.3 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
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 6.5.2 and Tables 6-4 and 6-5
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 6-5
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
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 6-4
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 6.5.3

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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 6.5.3 and Table 6-6
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 6-3
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
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 7.1.2
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	Section 7.4
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 7-2 to 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
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
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

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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 7-5
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
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix H
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 H
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 H
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 H
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 H
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 H
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 H
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 H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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 H
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix H
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 H
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 H
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix H
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 H
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 H
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 H
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 H
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 H
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 H
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 H
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 H

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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 H
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 H
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 H
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	Section 10.3
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	Section 10.4
	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	Chapter 9
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 10.3
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 10.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
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
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	Chapter 10
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 10.2.1
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 10.3
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
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	Section 10.6
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 10.7

Appendix B: Correspondence

- UWMP Notice of Preparation
- District Mailing List
- Growth Projection and Land Use Letter
- UWMP and WSCP Public Draft Comments

Note: There were no public comments received on the UWMP or WSCP Public Draft.

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 that California Water Service (Cal Water) update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years.

Cal Water is currently reviewing its existing UWMP and associated WSCP, which were updated in 2016, and considering revisions for each plan. Coordination with other water suppliers, cities, counties, and community organizations in the region is an important part of the preparation of Cal Water's UWMP and WSCP. We are available to discuss the assumptions used in the development of the plans including available water supply, water demands, land use, as well as other aspects of the plans.

A draft of the 2020 UWMP and WSCP will be made available for public review and a public hearing will be scheduled in Spring 2021. We will notify you when the draft is available for review, how to access it, and details regarding the public hearing.

The updated UWMP and WSCP are due by July 1, 2021. If you would like more information regarding our 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:

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Senior Engineer
California Water Service
Phone: (408) 367-8338
Email: PlanningInfo@calwater.com

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Bolzowski, Michael R.

From: Hurley, Michael
Sent: Wednesday, May 26, 2021 2:12 PM
To: vnorris@hawthorneca.gov
Cc: Thompson, Robert; Bolzowski, Michael R.; Sorensen, Ronald; Armendariz Jr., Daniel
Subject: Update of the Cal Water's Hawthorne District UWMP
Attachments: Hawthorne (TO CM) - Cal Water UWMP_Land Use Coordination.pdf

Dear Mr. Norris,

California Water Service (Cal Water) is currently updating its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to reflect water service conditions in its Hawthorne District, which is comprised of the City of Hawthorne's water system that Cal Water has operated for the City since 1996.

The State requires all urban water suppliers that provide water for municipal purposes either directly or indirectly to more than 3,000 customers or supply more than 3,000 acre-feet of water annually to prepare an UWMP and WSCP at least once every five years. These documents support Cal Water's long-term resource planning to ensure that adequate water supplies are available to meet existing and future water demands under defined conditions.

Cal Water's estimates of future water demands are based on demographic projections and current and projected land use forecasts for each of its service area. For the Hawthorne service area, Cal Water's water demand forecast is tied to Southern California Association of Governments (SCAG) census tract level projections of population, housing, and employment. These projections, in turn, are developed by SCAG through detailed land use, demographic, and transportation modeling.

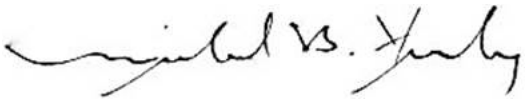
The UWMP also incorporates water supply assessments (WSA) for projects in or near the Hawthorne District into the demand forecast. As additional large-scale projects and/or specified land use planning processes arise (e.g., general plans, specific plans), additional WSAs will be developed to consider their impacts on available supplies.

We have attached the current public review draft of the UWMP, and incorporated WSCP for your review. Please share this with others in your organization that may be interested in the information.

Cal Water is available to discuss the assumptions used in the development of the UWMP for the Hawthorne District, including available supply, water demands, land use, as well as any other aspects of the plan.

Should you have any questions or comments, please contact Michael Bolzowski at mbolzowski@calwater.com.

Sincerely,



Michael B. Hurley
Water Resources Manager

Appendix C: Public Meeting Notice

- Public Meeting Notice of Intent
- Proof of Publication
- Public Meeting Presentation

Good afternoon!

We hope that this note finds you well.

We wanted to provide you with an update on the preparation of our updated Urban Water Management Plans and Water Shortage Contingency Plans.

These plans are a critical component of the steps we take to ensure there are sufficient water supplies to meet the current and future water needs of our customers, and we look forward to working with you on this important project.

Please let us know if you have any questions or need any additional information.

Cal Water Community Affairs

Urban Water Management Plan and
Water Shortage Contingency Plan - 2020 Update

As a defined urban water supplier, California Water Service (Cal Water) is preparing an update to its Urban Water Management Plans (UWMP) and Water Shortage Contingency Plans (WSCP) that will address the water service conditions in our service areas. These documents support a water supplier's long-term resource planning to ensure that adequate water supplies are available to meet existing and future water demands under defined conditions. It is Cal Water's intent to adopt the UWMPs, and the incorporated WSCPs, and file the plans as required with the Department of Water Resources, the California State Library, and any city or county within which Cal Water provides service no later than 30 days after adoption.

Schedule of upcoming actions:

After a public review period, a public meeting to receive comments on the Draft UWMP and WSCP will be held. As the information becomes available for each service area, the electronic copy of the UWMP, WSCP, and information on the public meeting, including a link to participate, will be available at the following internet address:

https://www.calwater.com/conservation/uwmp-review/

If you are unable to attend the scheduled public meeting but want to provide comments regarding the proposed UWMP or WSCP, you may send your comments via email to PlanningInfo@calwater.com.

Reliability Runs Deep

California Water Service
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EMILY HERNANDEZ
CALIFORNIA WATER SERVICE CO/PLANNING DEPT.
1720 NORTH FIRST ST.
SAN JOSE, CA 95112

CNS 3479504

COPY OF NOTICE

Notice Type:	GPN GOVT PUBLIC NOTICE
Ad Description	CALIFORNIA WATER SERVICE ? HAWTHORNE DISTRICT

To the right is a copy of the notice you sent to us for publication in the THE DAILY BREEZE. Please read this notice carefully and call us with any corrections. The Proof of Publication will be filed with the County Clerk, if required, and mailed to you after the last date below. Publication date(s) for this notice is (are):

06/08/2021 , 06/15/2021

The charge(s) for this order is as follows. An invoice will be sent after the last date of publication. If you prepaid this order in full, you will not receive an invoice.

NOTICE OF INTENT TO ADOPT AN URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN AND HOLD A PUBLIC MEETING TO RECEIVE COMMENTS ON THE PROPOSED PLANS CALIFORNIA WATER SERVICE – HAWTHORNE DISTRICT

California Water Code (CWC) sections 10610 through 10656, known as the "Urban Water Management Planning Act" (Act), require all urban water suppliers that provide water for municipal purposes either directly or indirectly to more than 3,000 customers or supply more than 3,000 acre-feet of water annually to prepare an Urban Water Management Plan (UWMP) at least once every five years.

UWMPs support a water supplier's long-term resource planning to ensure that adequate water supplies are available to meet existing and future water demands under defined conditions. The UWMP must describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation, and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The UWMP must also address measures for residential, commercial, governmental, and industrial water demand management.

Further, Section 10632 of the CWC requires that every urban water supplier shall prepare and adopt a

Water Shortage Contingency Plan (WSCP) as part of its plan (UWMP). Section 10632.2 provides that,

"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...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." The WSCP will be incorporated as an appendix of the UWMP.

One of Cal Water's service areas is the Hawthorne system, which serves the City of Hawthorne, in Los Angeles County. As a defined urban water supplier, Cal Water is preparing an update to its UWMP that will address the water service conditions in the Hawthorne District. It is Cal Water's intent to adopt that UWMP, and the incorporated WSCP, and file that plan as required with the Department of Water Resources, the California State Library, and any city or county within which Cal Water provides service no later than 30 days after adoption.

Schedule of upcoming actions:

On or about June 8 2021, an electronic copy of the Draft 2020 UWMP and WSCP will be available for review. After a public review period, a public meeting to receive comments on the Draft UWMP and WSCP Plan for the Hawthorne District will be held at the City Council Meeting on June 22, 2021, at 6:00 p.m. Interested parties wishing to provide comment on the plans can access the public meeting at following internet address: http://www.youtube.com/hawthornecommunitytelevision. The electronic copy of the UWMP, WSCP, and additional information on the public meeting is available at the following internet address:

https://www.calwater.com/conservation/uwmp-review/

If you are unable to attend the scheduled public meeting but want to provide comments regarding the proposed UWMP or WSCP, you may send your comments via email to PlanningInfo@calwater.com. Cal Water will receive comments on the Draft 2021 UWMP and WSCP from June 8 through June 23, 2021.

Please share this notice with others that may have interest in this matter.

6/8, 6/15/21

CNS-3479504#

THE DAILY BREEZE

California Water Service

June 22, 2021

Quality. Service. Value.

Hawthorne District

2020 Urban Water Management Plan
2020 Water Shortage Contingency Plan

Meeting Agenda

- Purpose and objectives
- Introduce California Water Service (CWS) staff and consultants
- Presentation of the 2020 Urban Water Management Plan (UWMP)
- Presentation of 2020 Water Shortage Contingency Plan (WSCP)
- Drought update
- Public comments and questions

2020 UWMP Update: Public Outreach

- Preliminary information sent to relevant entities in February 2021
- Second notice sent to relevant entities in May 2021
- Two notices posted in local newspaper
- Draft 2020 UWMP and WSCP available for review at **https://www.calwater.com/conservation/uwmp-review/**
- Public hearing

Urban Water Management Planning Act

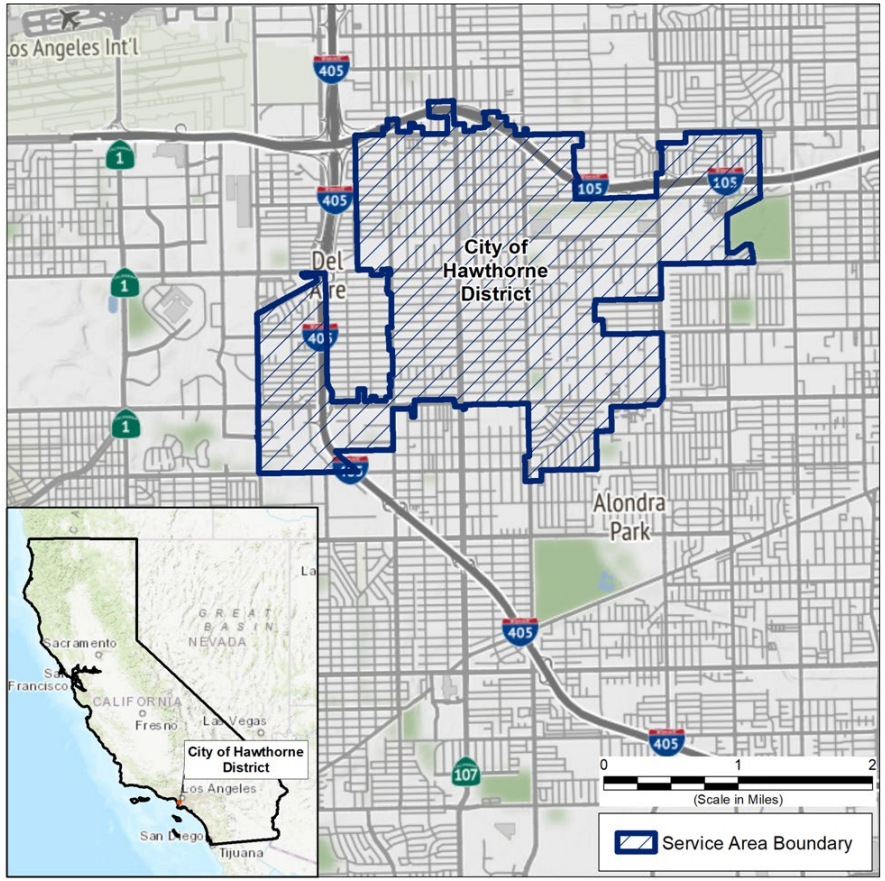
- Supports long-term water resource planning to ensure adequate supplies
- California Water Code - Sections 10610-10656
- Threshold: Utilities with 3,000+ services or 3,000+ acre-feet per year (AFY) water sales
- At least a 20-year planning horizon, Cal Water's plan covers 25 years
- Must be updated every 5 years and submitted by July 1, 2021
- Basis for SB-610 Water Supply Assessments and SB-221 Water Supply Verifications

UWMP Elements

- Service area description
- Population forecast
- Supply and demand projections through 2045 in normal, single dry and multiple dry years
- Water supply reliability
- Conservation/Demand Management Measures
- Climate change
- WSCP

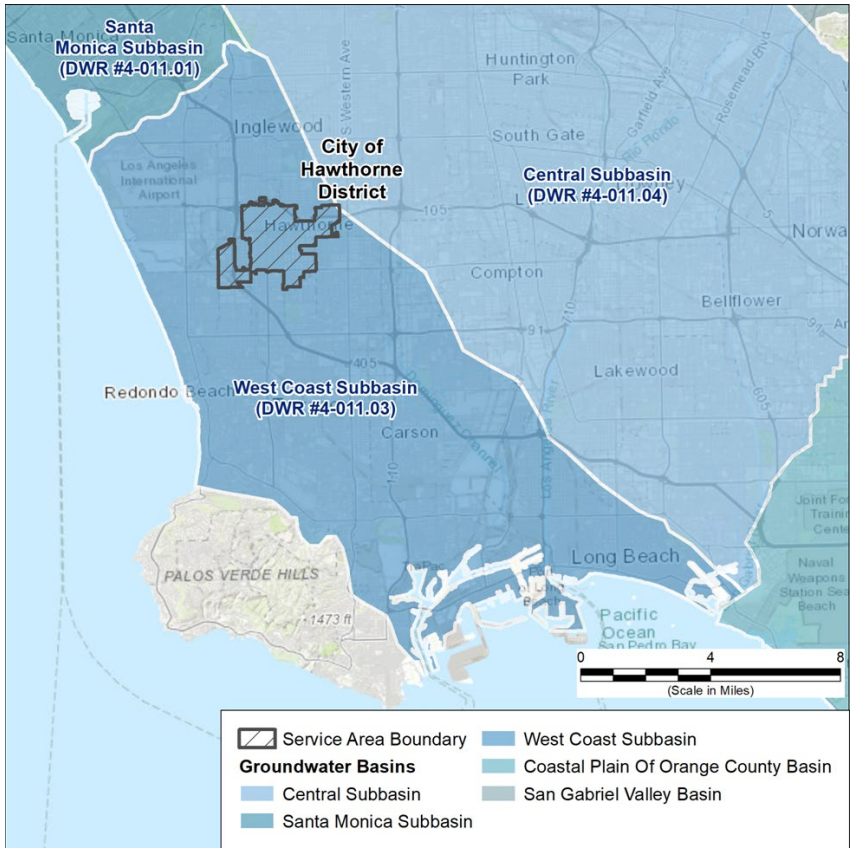
District Overview

- Serving Hawthorne District since 1996
- One Public Water System
- Uses groundwater and purchased water from West Basin Municipal Water District (WBMWD)
- Distribution system includes 4 wells and 5 surface storage structures



Water Supply Sources

- Groundwater pumped from the West Coast Subbasin
- Treated water purchased from WBMWD
- Recycled water
- Cal Water continues to investigate additional supply sources; however there is no current or projected use of other supply sources

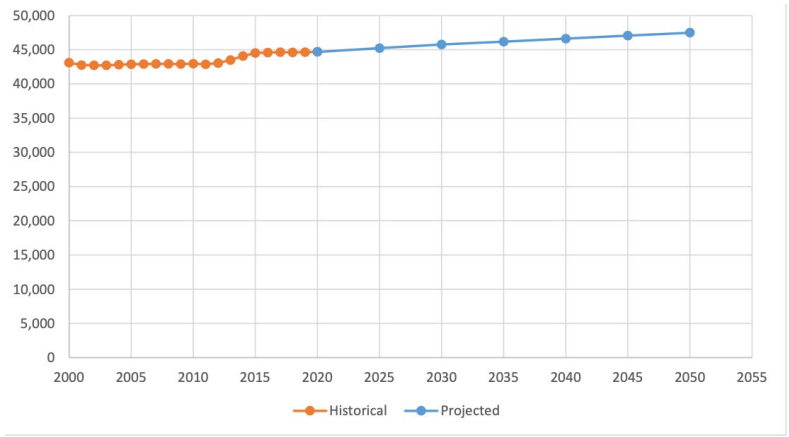


Demand Projection Methodology

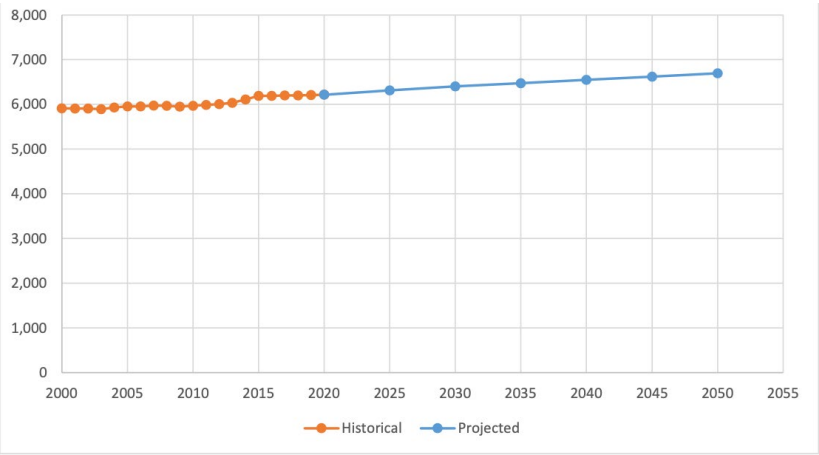
- Forecast horizon is beyond 20 years required by UWMP
- Generates normal-, wet-, and dry-year demand forecasts
- Directly considers impacts of climate change
- Demand model uses historical data on services, sales, production, population, and proposed conservation measures
- Regional Growth Forecast: housing and employment growth forecasts based on county-level forecasts prepared by the Southern California Association of Governments (SCAG)

Population & Account Projections

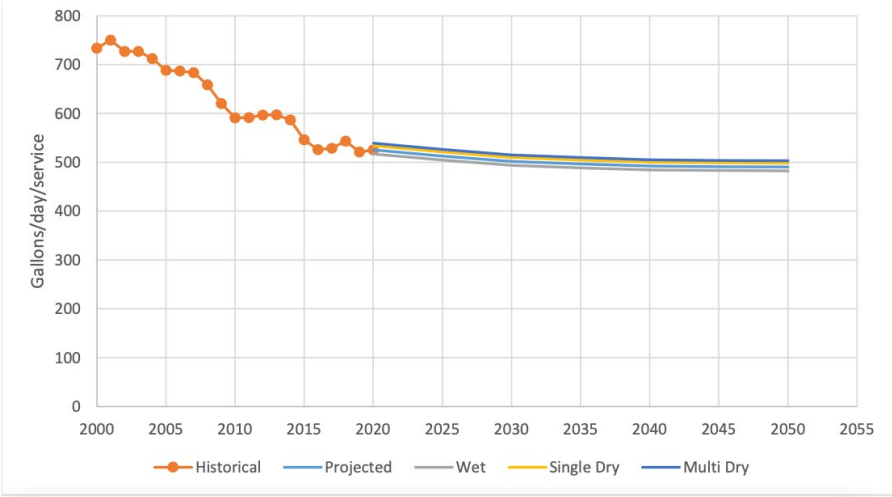
Historical and Projected Population



Historical and Projected Services

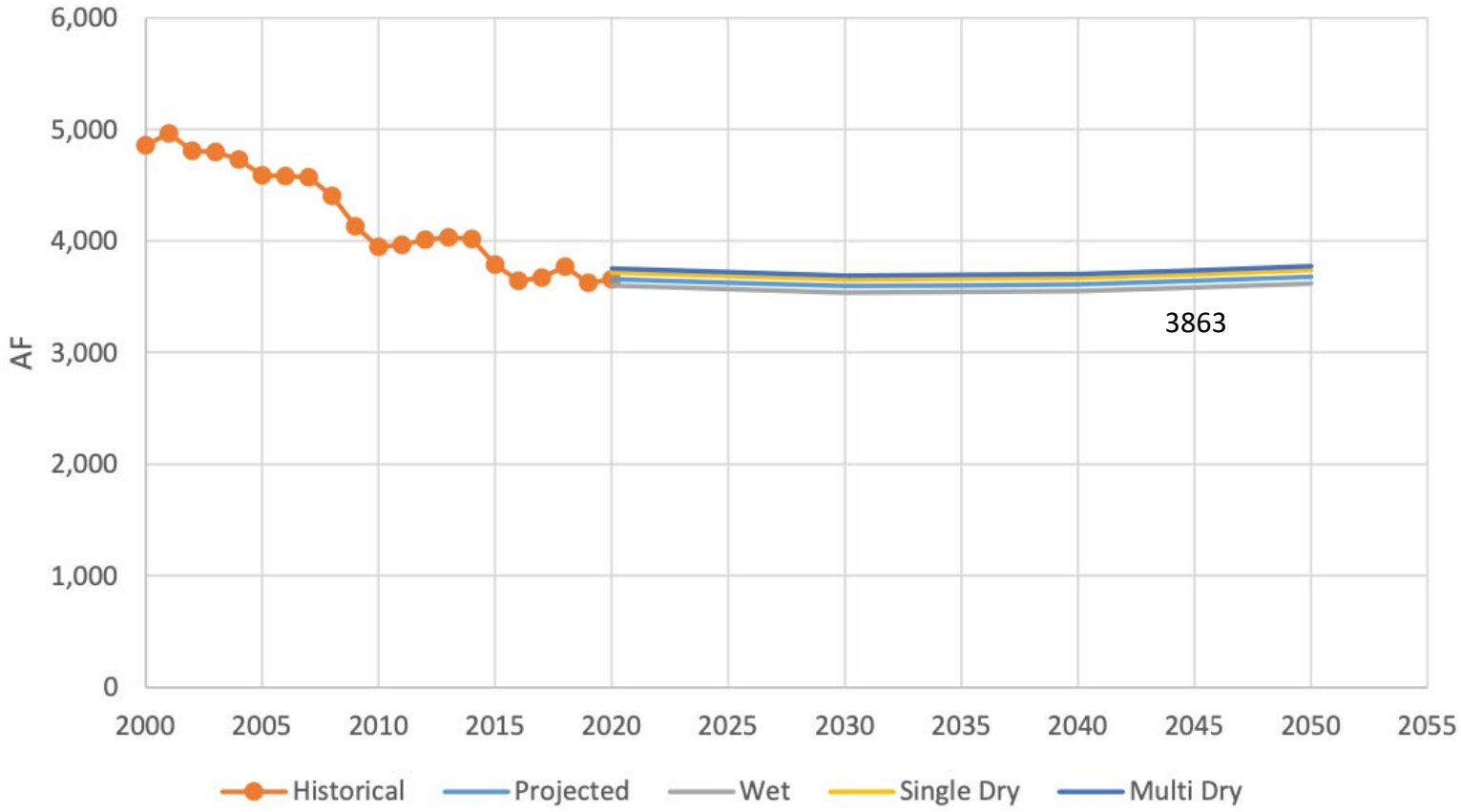


Average Demand Per Service



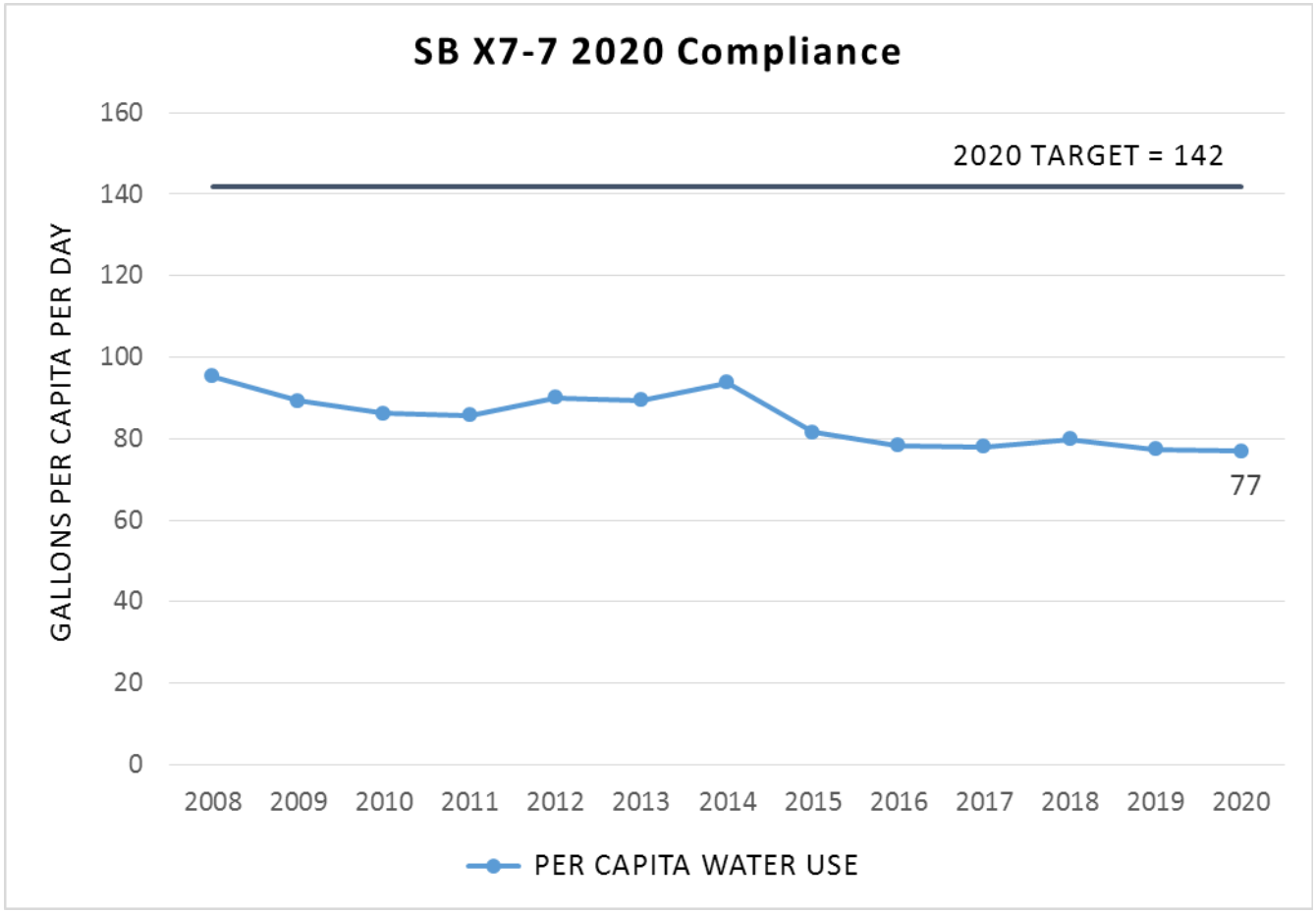
Demands for Potable Water - Projected

- 2045 demand projected to be 3,863 acre-feet per year
- 0.3% increase relative to 2020 demands



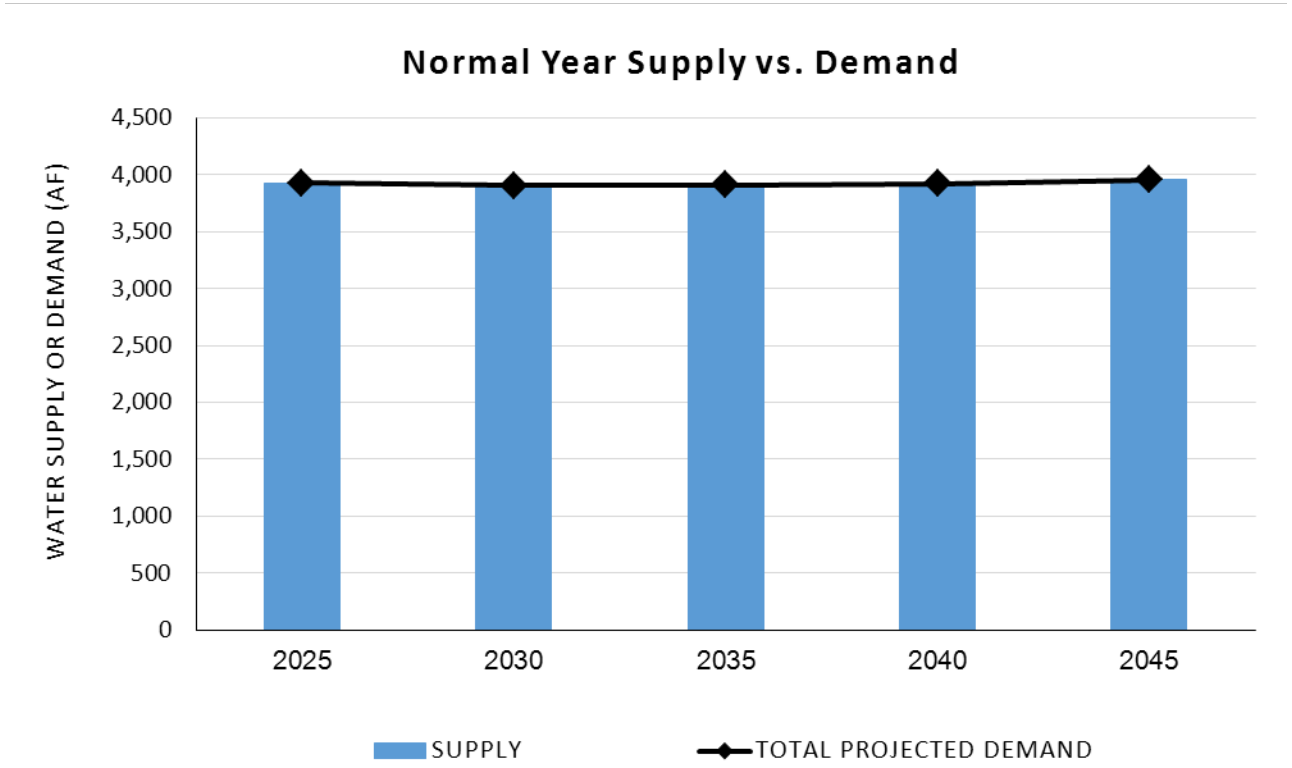
SB X7-7 (20% by 2020)

- Goal is to reduce per capita urban water use below baseline by:
  - 10% by Dec. 31, 2015
  - 20% by Dec. 31, 2020
- Hawthorne District met its 2020 Target



Supply Sufficiency

- Supply sufficiency analysis is based on the following factors:
  - Hawthorne District has always been able to meet historical demands; due to successful conservation, projected future demands are less than historical
  - Long-term supply agreement with wholesaler provides reliable purchased water source
  - West Coast Subbasin is adjudicated and pumping allowances are reliable over the long term.
- Supply is projected to be sufficient to meet projected demand under normal, single dry, and multiple dry year conditions
- Any unexpected shortages will be addressed by the WSCP



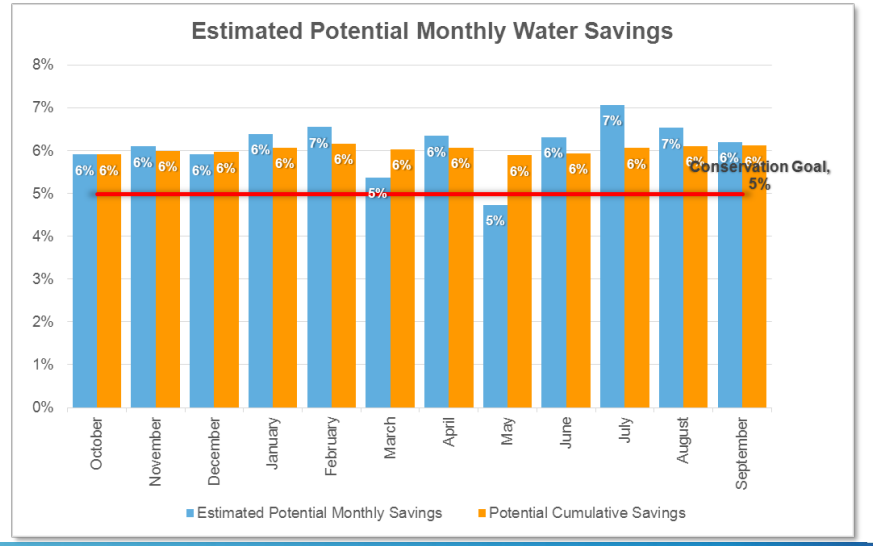
Local Topics – Hawthorne District

- WBMWD purchased supply is projected to be reliable.
- West Coast Subbasin allowable pumping volume under adjudication order is also reliable.

Water Shortage Contingency Plan Elements

- Comprehensive drought response plan
  - Annual assessment of water supply reliability
  - Six standard shortage stages (10% to >50%)
  - Shortage response actions
  - Communication protocols
  - Monitoring, enforcement, and reporting
- Quantitatively assessed using Drought Response Tool

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	5%
Drought Stage	Stage 1
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw



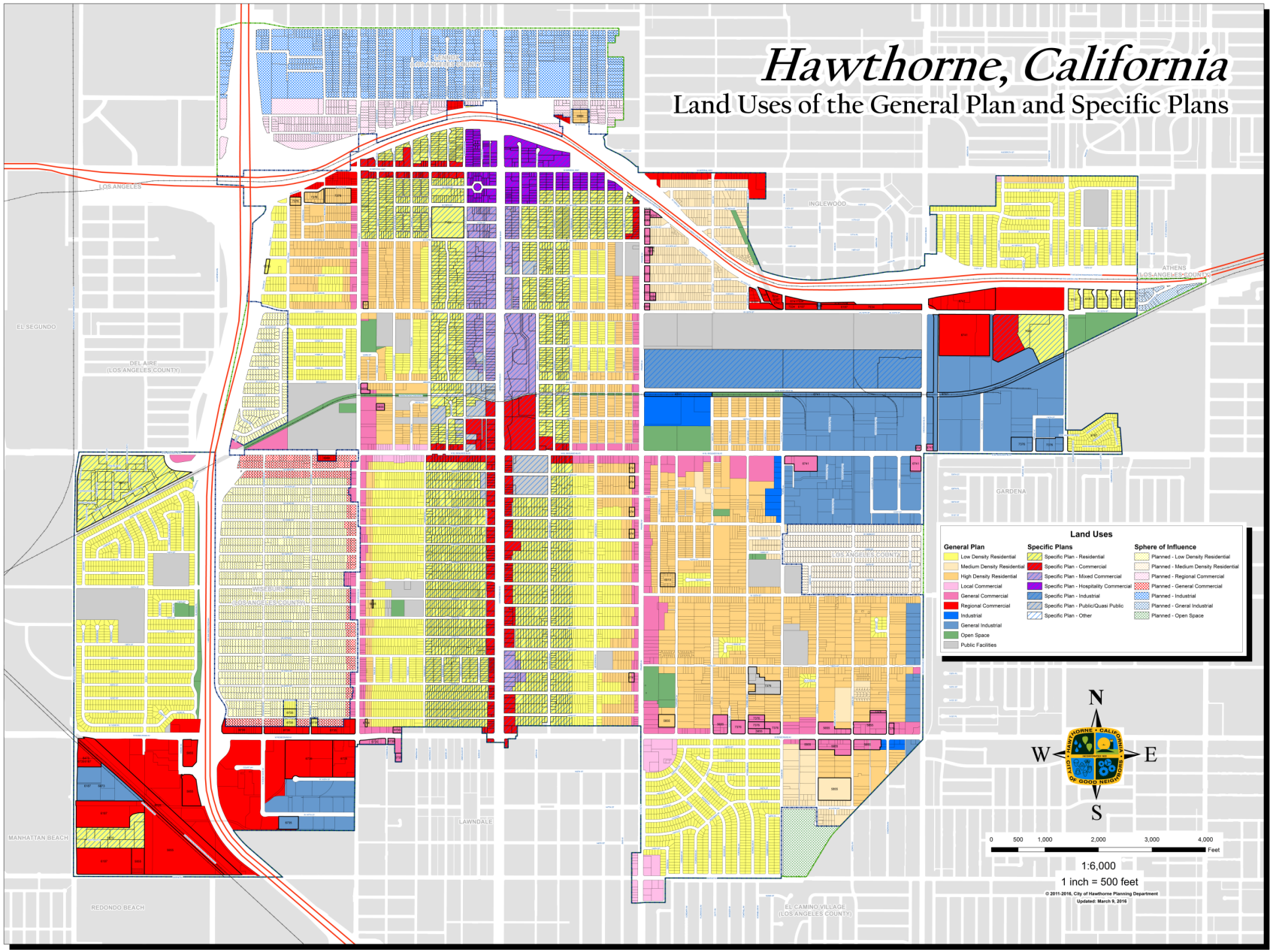
Drought Update

- Governor has issued drought emergencies in the majority of counties in California
- Cal Water is monitoring drought conditions in all of its service territories
  - Established a Drought Response Committee
  - Proactively developing conservation messaging
- Cal Water is closely coordinating its drought response with other water agencies and regulatory bodies
- Cal Water will follow protocols outlined in the WSCP as needed
  - Based on local conditions or state mandates

Questions or Comments

- Draft 2020 UWMP and 2020 WSCP available at **https://www.calwater.com/conservation/uwmp-review/**
- Comments on any parts of the UWMP will be accepted through end of day
- Send 2020 UWMP and WSCP comments to: planninginfo@calwater.com

Appendix D: General Plan Land Use Map


Hawthorne, California
Land Uses of the General Plan and Specific Plans
LOS ANGELES
INGLEWOOD
ATHENS
(LOS ANGELES COUNTY)
EL SEGUNDO
DEL AIRE
(LOS ANGELES COUNTY)
GARDENA
WEST ATHENS
(LOS ANGELES COUNTY)
LAWNDALE
MANHATTAN BEACH
REDONDO BEACH
EL CAMINO VILLAGE
(LOS ANGELES COUNTY)
Land Uses
General Plan
Low Density Residential
Medium Density Residential
High Density Residential
Local Commercial
General Commercial
Regional Commercial
Industrial
General Industrial
Open Space
Public Facilities
Specific Plans
Specific Plan - Residential
Specific Plan - Commercial
Specific Plan - Mixed Commercial
Specific Plan - Hospitality Commercial
Specific Plan - Industrial
Specific Plan - Public/Quasi Public
Specific Plan - Other
Sphere of Influence
Planned - Low Density Residential
Planned - Medium Density Residential
Planned - Regional Commercial
Planned - General Commercial
Planned - Industrial
Planned - Gneral Industrial
Planned - Open Space
N
W
E
S
0
500
1,000
2,000
3,000
4,000
Feet
1:6,000
1 inch = 500 feet
© 2011-2016, City of Hawthorne Planning Department
Updated: March 9, 2016

Appendix E: Summary of Demand Projection Methodology and Assumptions

Cal Water Long-Term Demand Forecast Model Overview

Forecast Domain

The forecast model generates separate forecasts for each customer class and distribution system. Table 1 lists Cal Water districts and distribution systems. Table 2 lists customer classes.

Forecast Horizon and Time Step

The forecast horizon is 30 years. The forecast has an annual time-step.

Normal, Wet, and Dry Year Forecasts

The forecast model generates normal-, wet-, and dry-year demand forecasts. The normal-year forecast is the default forecast. The wet- and dry-year forecasts can be substituted for the default forecast as necessary for system planning purposes. The model produces two different dry year forecasts: the single dry year forecast and the multiple dry year forecast. The latter represents the expected effect of prolonged drought conditions on unconstrained water demand.[1]

Relationship to GRC Sales Forecast

The first year of the forecast can be set to the current GRC sales forecast or actual consumption.

Relationship to PAWS

The demand model uses historical data on services, sales, production, and population from Cal Water's Production Analysis Worksheets (PAWS).

Accounting Rules

The model uses the following accounting rules to ensure forecast consistency:

- Population and conservation savings forecasts are functions of the service forecast.
- The sales forecast for a distribution system is the sum of the class-level sales forecasts for the distribution system. The production forecast for a distribution system is the sum of the sales and non-revenue water (NRW) forecasts for the distribution system.
- The sales and production forecasts for a district are the sum of the sales and production forecasts for its distribution systems.

Volume Units

Sales and production forecasts are in acre-feet (AF). Average sales and per capita forecasts are in gallons per day.

Per Capita Water Use

The model generates per capita forecasts for water use by single-family customers, water use by multi-family customers, water use by all residential customers, and water use by all district customers.

[1] Unconstrained demand is what demand would be in the absence of water use restrictions or policies intended to curtail water use.

Service Forecast

The forecast model generates three alternative service forecasts:

- Average Y-Y Change in Services. The model bases the forecast on the historical year-to-year (y-y) change in the number of services. This forecast assumes additive growth.
- Average Y-Y % Change in Services. The model bases the forecast on the historical y-y percentage change in services. This forecast assumes exponential growth.
- Regional Growth Forecast. The model uses regional housing and employment growth forecasts to project future services. Districts in the Bay Area use census-tract level growth forecasts prepared by the Association of Bay Area Governments (ABAG). Districts in Southern California use census-tract-level growth forecasts prepared by the Southern California Association of Governments (SCAG). The remaining districts use county-level forecasts prepared by Caltrans.

Regional Forecasts

Table 3 lists the regional forecasts in the model. Table 4 summarizes how the model uses the regional forecasts to project future services.

Service Floors and Ceilings

The forecast can include floors and ceilings on the service growth. The floor (ceiling) is the minimum (maximum) number of services allowed in the forecast.

User-Specified Growth Rates

The model allows user-specified growth rates.

Water Supply Assessments

The user can add to the forecast projected services and water use from Water Supply Assessments prepared for proposed development projects. The user can specify how much of this projected growth in services and water use the model should treat as additive to the baseline forecast.

Population Forecasts

The population projection is a function of the residential service projections to ensure internal consistency. Population in year t is:

$$Population_t = \left[\frac{persons}{service}\right]_{SFR} \cdot SFRservices_t + \left[\frac{persons}{service}\right]_{MFR} \cdot MFRservices_t$$

For multi-family services, the calculation of average persons per service uses the equation below. The model uses county assessor data linked to Cal Water customer data to estimate average dwelling units per parcel and average parcels per service. It uses census data to estimate average persons per dwelling unit.

$$\left[\frac{persons}{service}\right]_{MFR} = \frac{Avg\ Dwelling\ Units}{Parcel} \cdot \frac{Avg\ Parcels}{Service} \cdot \frac{Avg\ Persons}{Dwelling\ Unit}$$

Sales/Service Forecast

The model generates separate forecasts of sales/service for each customer class and distribution system.

Sales/Service Initialization

The model user sets sales/service for first year of the forecast to either current year water use or the most recent General Rate Case sales forecast. The 2020 UWMP projections start with 2020 actual sales/service.

Sales/Service Adjustments

In each forecast year, the model adjusts the previous year's sales/service estimate for:

1. Rebound from the 2012-16 drought
2. Passive water savings from plumbing codes and appliance standards
3. Active water savings from Cal Water conservation programs
4. Real changes in the marginal cost of water service
5. Real changes in per capita income

The user can select which adjustments to apply. The 2020 UWMP projections include all the adjustments except the drought rebound adjustment. The 2020 UWMP projections exclude the drought rebound adjustment because analysis of recent consumption trends showed that further rebound from the 2012-2016 drought was unlikely.

A description of each adjustment follows.

Drought Rebound

The model adjusts the sales/service forecast for demand recovery following the 2012-2016 drought. The model makes this adjustment using data on the growth in sales/service between 2016 and 2017. The model assumes some of the savings achieved during the drought will be permanent. The user can set the level of permanent drought savings. The default setting is 20%.

Passive Water Savings

The model uses DWR projections of water savings from plumbing/building codes to forecast passive water savings.[2] The model extends the DWR projections, which run through 2040, to 2050.

Active Water Savings

The model uses conservation program savings projections from Cal Water's 2015 Conservation Master Plans to forecast active water savings.

Price and Income Adjustments

The model adjusts average sales for expected changes in real income and cost of water service. The adjustment equation is:[3]

[2] M.Cubed. 2016. Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor GPCD. Technical Memorandum prepared by David Mitchell for the California Department of Water Resources. August 30, 2016.

[3] The model uses a constant-elasticity-of-demand specification: $Q_t = AP_t^{\varepsilon} I_t^{\delta}$

$$\Delta Q_t = Q_0 \left(1 - \left(\frac{P_t}{P_0}\right)^{\varepsilon} \left(\frac{I_t}{I_0}\right)^{\delta}\right)$$

where Q_0 is sales/service in the base year of the forecast, $\left(\frac{P_t}{P_0}\right)$ and $\left(\frac{I_t}{I_0}\right)$ are the price of water and income relative to the base year of the forecast, and ε and δ are empirically derived estimates of price and income elasticity.

Sales Forecast

The sales forecast is the product of the service and average use per service forecasts.

Non-Revenue Water Forecast

The non-revenue water forecast is a function of the services forecast. The forecast starts with an initial estimate of non-revenue water, expressed in gallons/connection/day. The model decomposes this estimate into real and apparent loss. The model assumes future apparent loss is equal to the average apparent loss for the five year before the start of the forecast. In the case of real loss, the model assumes Cal Water's loss management program will reduce real losses over time. The amount of reduction depends on the staring estimate of real loss. If this estimate is 10 gallons/connection/day or less, the model assumes no further reduction. Otherwise, the model assumes real losses (in gallons/connection/day) will decrease until they are equal to 75% of the average real loss for the five years before the start of the forecast or the State Water Board draft real water loss standard for the distribution system, whichever is greater.[4] The model assumes the reduction in real loss will occur between 2020 and 2030.

Production Forecast

The production forecast is the sum of the sales and NRW forecasts.

Normal, Wet, Single Dry, and Multiple Dry Year Projections

The model generates normal, wet, single dry, and multiple dry year forecasts of sales and production. The model bases these forecasts on empirically derived relationships between monthly water sales, rainfall, and air temperature estimated for each Cal Water district.[5]

- Wet year – minus one standard deviation weather effect on sales and production
- Single dry year – plus one standard deviation weather effect on sales and production
- Multiple dry year – plus 1.6 standard deviations weather effect on sales and production

In the case of the dry year forecasts, the model is forecasting demand in the absence of drought water use restrictions or other policies that would limit water use in dry years.

[4] The State Water Board did not develop a draft water loss standard for every Cal Water distribution system. For those without a draft standard, the model assumes real losses will decrease until they are equal to 75% of the average real loss for the five year before the start of the forecast.

[5] A&N Technical Services, Cal Water Long Term Water Demand Forecast Model, December 2014.

Table 1. Long-Term Demand Model Districts and Systems

Label	District-System	Notes
AV	**Antelope Valley District**	
AV-FMT	Fremont System	
AV-LAN	Lancaster System	
AV-LKH	Lake Hughes System	
AV-LVY	Leona Valley System	
BG	**Bear Gulch District**	No sub-systems in district
BK	**Bakersfield District**	
BK-BK	Bakersfield System	
BK-NG	North Garden System	
CH	**Chico District**	
CH-CH	Chico System	
CH-HAM	Hamilton City System	
DIX	**Dixon District**	No sub-systems in district
DOM	**Dominguez District**	No sub-systems in district
ELA	**East Los Angeles District**	No sub-systems in district
HAW	**Hawthorne District**	No sub-systems in district
HR	**Hermosa-Redondo District**	No sub-systems in district
KC	**King City District**	No sub-systems in district
KRV	**Kern River Valley District**	
KRV-BDFLO	Lower Bodfish System	
KRV-BDFUP	Upper Bodfish System	
KRV-KNVARD	Kernville & Arden System	Includes KNV, KRVArdenWaterCo, COUN, MSH, POND
KRV-LKL	Lakeland System	
KRV-ONX	Onyx System	
KRV-SLK	South Lake System	Includes SQM
KRV-SPM	Split Mountain System	
LAS	**Los Altos District**	No sub-systems in district
LIV	**Livermore District**	No sub-systems in district

Label	District-System	Notes
MPS	**Mid-Peninsula District**	
MPS-SM	San Mateo System	
MPS-SC	San Carlos System	
MRL	**Marysville District**	No sub-systems in district
ORO	**Oroville District**	No sub-systems in district
PV	**Palos Verdes District**	No sub-systems in district
RDV	**Redwood Valley District**	
RDV-ARM	Armstrong System	
RDV-CSP	Coast Springs System	
RDV-HKN	Hawkins Water System	
RDV-LUC	Lucerne System	
RDV-NOH	Noel Heights System	
RDV-RPD	Rancho del Paradiso System	
SEL	**Selma District**	No sub-systems in district
SLN	**Salinas District**	
SLN-SLN	Salinas System	Includes Bolsa Knolls, Country Meadows
SLN-SLNH	Salinas Hills System	Includes Buena Vista, Indian Springs
SLN-OH	Oak Hill System	
SLN-LL	Las Lomas System	
SSF	**South San Francisco District**	No sub-systems in district
STK	**Stockton District**	No sub-systems in district
VIS	**Visalia District**	No sub-systems in district
WIL	**Willows District**	No sub-systems in district
WLK	**Westlake District**	No sub-systems in district

Table 2. Long-Term Demand Model Customer Classes

Label	Description	Revenue Class #
SFR	Single-Family Residential	1
FLT	Single-Family Flat Rate	4
RES	SFR + FLT	1, 4
MFR	Multi-Family	15
COM	Commercial/Business	2
GOV	Government/Public Authority	11
IND	Industrial	3
OTH	Other/miscellaneous	8,13
IRR	Dedicated irrigation customers	7

Table 3. Regional Forecasts used in First Generation Long-term Demand Model Forecasts

Regional Forecast	Version	Range
ABAG	Plan Bay Area 2040, GEOID10-level summary	2010 to 2040
SCAG	RTP07 GEOID10-level	2010 to 2035
Caltrans	2017 County Forecasts	2010 to 2050

Table 4. Regional Growth Rates used in the Service Growth Forecasts

Service Class	ABAG	SCAG	Caltrans
SFR	y-y % change in single-family dwelling units	y-y % change in all residential dwelling units	y-y % change in single-family dwelling units
MFR	y-y % change in multi-family dwelling units	y-y % change in all residential dwelling units	y-y % change in multi-family dwelling units
COM	y-y % change in total number of jobs	y-y % change in total number of jobs	y-y % change in county employment in retail, wholesale, information, financial, professional, and leisure sectors
GOV	y-y % change in gov't, information, and construction jobs	y-y % change in total number of jobs	y-y % change in county employment in federal, state, local government and education and healthcare sectors
IND	y-y % change in manufacturing jobs	y-y % change in total number of jobs	y-y % change in county employment in manufacturing sectors

Historical and Projected Services, Water Sales, and Total Production

District Demand Projection Report
City of Hawthorne

6/4/2021

General Rate Case Sales Baseline 2020

Historical Data Range
First Year 2000
Last Year 2020

Forecast Range
First Year 2020
Last Year 2050

Service Growth Basis SCAG Growth Forecasts

Service Growth Rates

Class	SCAG Projected	Historical %Y-Y[1] 5-Yr	10-Yr	15-Yr	20-Yr
RES[2]	0.2%	0.1%	0.3%	0.2%	0.1%
MFR	0.2%	0.1%	1.1%	0.7%	0.5%
COM	0.2%	-0.1%	0.2%	0.1%	1.0%
GOV	0.2%	-2.3%	-0.1%	0.6%	9.4%
IND	0.2%	13.0%	0.0%		
TOT		0.1%	0.4%	0.3%	0.3%

Water Supply Assessments

	WSA Name	Completion Date	Incorporated into Forecast (Y/N)
1			
2			
3			
4			
5			

Sales Forecast Adjustments

Drought Rebound	OFF
Plumbing Code	ON
Active Conservation	ON
Price Response	ON
Income Response	ON

Non-Revenue Water (NRW) Basis

Real loss (gal/con/day):
2016-2020 average if <= 10 gal/con/day
Draft Water Board standard or 75% of 2016-2020 average, whichever is greater, by 2030.
Apparent loss (gal/con/day): 2016-2020 average.

1. Account reclassifications can impact historical %Y-Y growth rates for individual customer classes.
2. RES = Metered and unmetered single-family residential customers.

Historical Service Counts

YEAR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
2000	4,638	781	477	11	0	1	0	5,908
2001	4,512	787	554	52	0	3	0	5,908
2002	4,500	785	557	59	0	4	0	5,906
2003	4,493	780	553	61	0	6	0	5,892
2004	4,520	783	559	61	0	5	0	5,928
2005	4,534	781	571	61	0	4	0	5,951
2006	4,535	780	574	61	1	2	0	5,953
2007	4,541	780	584	62	1	5	0	5,972
2008	4,535	780	584	63	2	4	0	5,967
2009	4,525	779	577	65	2	2	0	5,949
2010	4,540	780	574	67	2	2	0	5,965
2011	4,502	833	579	69	2	2	0	5,987
2012	4,509	837	584	72	2	2	0	6,006
2013	4,520	849	584	75	2	2	0	6,031
2014	4,581	860	588	75	2	4	0	6,110
2015	4,660	866	586	75	1	4	0	6,191
2016	4,657	868	583	75	1	3	0	6,188
2017	4,662	869	589	74	2	4	0	6,200
2018	4,666	868	586	70	2	7	0	6,198
2019	4,680	868	586	67	2	3	0	6,206
2020	4,692	868	584	67	2	3	0	6,216
2021								
2022								
2023								
2024								
2025								
2026								
2027								
2028								
2029								
2030								

CAGR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
5-Year	0.1%	0.1%	-0.1%	-2.3%	13.0%	-3.0%		0.1%
10-Year	0.3%	1.1%	0.2%	-0.1%	0.0%	2.5%		0.4%
15-Year	0.2%	0.7%	0.1%	0.6%		-2.0%		0.3%
20-Year	0.1%	0.5%	1.0%	9.4%		5.4%		0.3%

CAGR = Compound Annual Growth Rate

District Demand Projection Report
City of Hawthorne

Historical Sales (AF)

YEAR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
2000	2,657	1,694	433	70	0	0	0	4,855
2001	2,465	1,770	585	137	0	7	0	4,964
2002	2,375	1,716	586	128	0	3	0	4,809
2003	2,308	1,688	677	111	0	13	0	4,797
2004	2,343	1,662	595	125	0	3	0	4,728
2005	2,250	1,626	613	96	0	1	0	4,586
2006	2,245	1,602	622	106	1	4	0	4,580
2007	2,286	1,537	616	114	1	17	0	4,570
2008	2,209	1,492	589	104	5	3	0	4,402
2009	2,085	1,414	542	85	4	1	0	4,131
2010	1,951	1,340	563	83	10	2	0	3,948
2011	1,887	1,406	571	87	13	2	0	3,965
2012	1,918	1,426	560	90	13	4	0	4,012
2013	1,928	1,436	571	81	16	3	0	4,033
2014	1,876	1,431	599	93	14	5	0	4,016
2015	1,699	1,410	589	73	14	2	0	3,787
2016	1,627	1,345	580	75	15	1	0	3,643
2017	1,626	1,354	596	74	17	3	0	3,670
2018	1,650	1,352	665	83	18	3	0	3,771
2019	1,596	1,285	654	63	23	1	0	3,623
2020	1,689	1,302	577	62	26	1	0	3,658
2021								
2022								
2023								
2024								
2025								
2026								
2027								
2028								
2029								
2030								

CAGR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
5-Year	-0.1%	-1.6%	-0.4%	-3.3%	13.1%	-5.0%		-0.7%
10-Year	-1.4%	-0.3%	0.3%	-2.9%	10.3%	-6.3%		-0.8%
15-Year	-1.9%	-1.5%	-0.4%	-2.9%		-0.1%		-1.5%
20-Year	-2.2%	-1.3%	1.4%	-0.6%		7.9%		-1.4%

CAGR = Compound Annual Growth Rate

Historical Sales/Service (GPD)

YEAR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
2000	511	1,938	810	5,651		231		734
2001	488	2,009	944	2,356		1,927		750
2002	471	1,951	940	1,948		553		727
2003	459	1,932	1,093	1,621		2,133		727
2004	463	1,895	950	1,834		582		712
2005	443	1,858	959	1,409		279		688
2006	442	1,833	968	1,551	505	1,954		687
2007	449	1,760	943	1,646	706	3,330		683
2008	435	1,709	900	1,489	2,773	615		659
2009	411	1,620	840	1,158	2,304	320		620
2010	384	1,533	876	1,100	4,376	905		591
2011	374	1,507	882	1,117	5,849	619		591
2012	380	1,521	856	1,121	5,842	1,961		596
2013	381	1,510	873	960	6,984	1,132		597
2014	366	1,485	908	1,106	6,118	1,133		587
2015	326	1,454	897	869	11,664	410		546
2016	312	1,383	889	888	9,397	172		526
2017	311	1,391	903	891	7,490	728		528
2018	316	1,391	1,015	1,051	8,074	390		543
2019	304	1,322	997	836	10,449	331		521
2020	321	1,339	883	826	11,716	369		525
2021								
2022								
2023								
2024								
2025								
2026								
2027								
2028								
2029								
2030								

CAGR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
5-Year	-0.3%	-1.6%	-0.3%	-1.0%	0.1%	-2.1%		-0.8%
10-Year	-1.8%	-1.3%	0.1%	-2.8%	10.3%	-8.6%		-1.2%
15-Year	-2.1%	-2.2%	-0.5%	-3.5%		1.9%		-1.8%
20-Year	-2.3%	-1.8%	0.4%	-9.2%		2.4%		-1.7%

CAGR = Compound Annual Growth Rate

Historical Production (AF)

YEAR	SALES	NRW	PROD	NRW %	NRW GPD/Svc
2000	4,855	125	4,980	2.5%	19
2001	4,964	-67	4,897	-1.4%	-10
2002	4,809	186	4,995	3.7%	28
2003	4,797	20	4,817	0.4%	3
2004	4,728	272	5,000	5.4%	41
2005	4,586	329	4,915	6.7%	49
2006	4,580	84	4,665	1.8%	13
2007	4,570	173	4,743	3.6%	26
2008	4,402	181	4,582	3.9%	27
2009	4,131	155	4,287	3.6%	23
2010	3,948	198	4,146	4.8%	30
2011	3,965	152	4,117	3.7%	23
2012	4,012	332	4,344	7.6%	49
2013	4,033	327	4,360	7.5%	48
2014	4,016	613	4,630	13.2%	90
2015	3,787	278	4,064	6.8%	40
2016	3,643	271	3,913	6.9%	39
2017	3,670	226	3,896	5.8%	33
2018	3,771	222	3,993	5.6%	32
2019	3,623	248	3,871	6.4%	36
2020	3,658	194	3,852	5.0%	28
2021					
2022					
2023					
2024					
2025					
2026					
2027					
2028					
2029					
2030					

CAGR	SALES	NRW	PROD		NRW GPD/Svc
5-Year	-0.7%	-6.9%	-1.1%		-7.0%
10-Year	-0.8%	-0.2%	-0.7%		-0.6%
15-Year	-1.5%	-3.5%	-1.6%		-3.7%
20-Year	-1.4%	2.2%	-1.3%		2.0%

CAGR = Compound Annual Growth Rate

Historical GPCD

		GPCD	
YEAR	POPULATION	RESIDENTIAL	TOTAL
2000	43,088	90	103
2001	42,735	88	102
2002	42,717	86	104
2003	42,710	84	101
2004	42,807	84	104
2005	42,866	81	102
2006	42,884	80	97
2007	42,919	80	99
2008	42,918	77	95
2009	42,902	73	89
2010	42,964	68	86
2011	42,876	69	86
2012	43,054	69	90
2013	43,496	69	89
2014	44,086	67	94
2015	44,504	62	82
2016	44,585	60	78
2017	44,632	60	78
2018	44,608	60	80
2019	44,649	58	77
2020	44,690	60	77
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			

CAGR	POPULATION	RESIDENTIAL GPCD	TOTAL GPCD
5-Year	0.1%	-0.9%	-1.2%
10-Year	0.4%	-1.3%	-1.1%
15-Year	0.3%	-2.0%	-1.9%
20-Year	0.2%	-2.0%	-1.5%

CAGR = Compound Annual Growth Rate

Projected Services

YEAR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
2020	4,692	868	584	67	2	3	0	6,216
2021	4,706	871	585	71	2	6	0	6,242
2022	4,720	873	586	72	2	6	0	6,260
2023	4,734	876	588	72	2	6	0	6,278
2024	4,748	878	589	72	2	6	0	6,296
2025	4,762	881	590	72	2	6	0	6,313
2026	4,776	884	591	72	2	6	0	6,331
2027	4,790	886	592	72	2	6	0	6,349
2028	4,804	889	594	72	2	6	0	6,367
2029	4,818	891	595	73	2	6	0	6,385
2030	4,829	893	596	73	2	6	0	6,399
2031	4,840	895	597	73	2	6	0	6,414
2032	4,851	898	598	73	2	6	0	6,428
2033	4,862	900	599	73	2	6	0	6,443
2034	4,874	902	601	73	2	6	0	6,457
2035	4,885	904	602	73	2	6	0	6,472
2036	4,896	906	603	74	2	6	0	6,487
2037	4,907	908	604	74	2	6	0	6,501
2038	4,919	910	605	74	2	6	0	6,516
2039	4,930	912	607	74	2	6	0	6,531
2040	4,941	914	608	74	2	6	0	6,546
2041	4,953	916	609	74	2	6	0	6,561
2042	4,964	918	610	74	2	6	0	6,575
2043	4,975	921	611	75	2	6	0	6,590
2044	4,987	923	613	75	2	6	0	6,605
2045	4,998	925	614	75	2	6	0	6,620
2046	5,010	927	615	75	2	6	0	6,635
2047	5,021	929	616	75	2	6	0	6,650
2048	5,033	931	617	75	2	6	0	6,665
2049	5,045	933	619	76	2	6	0	6,680
2050	5,056	935	620	76	2	6	0	6,695

Projected Sales (AF)

YEAR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
2020	1,689	1,302	577	62	26	1	0	3,658
2021	1,692	1,297	570	65	26	3	0	3,653
2022	1,695	1,293	563	64	26	3	0	3,644
2023	1,699	1,290	556	63	26	3	0	3,637
2024	1,703	1,288	550	62	26	3	0	3,632
2025	1,706	1,286	544	62	26	3	0	3,626
2026	1,709	1,284	539	61	26	3	0	3,622
2027	1,707	1,282	534	60	26	3	0	3,612
2028	1,707	1,280	529	60	26	3	0	3,605
2029	1,708	1,279	525	59	26	3	0	3,601
2030	1,709	1,278	521	59	26	3	0	3,596
2031	1,712	1,278	518	58	26	3	0	3,595
2032	1,713	1,278	514	58	26	3	0	3,592
2033	1,718	1,279	511	58	26	3	0	3,595
2034	1,723	1,280	508	57	26	3	0	3,597
2035	1,728	1,282	505	57	26	3	0	3,600
2036	1,730	1,283	503	57	26	3	0	3,601
2037	1,732	1,284	500	56	26	3	0	3,601
2038	1,735	1,286	498	56	26	3	0	3,604
2039	1,738	1,287	496	56	26	3	0	3,606
2040	1,741	1,289	494	55	26	3	0	3,609
2041	1,746	1,292	492	55	26	3	0	3,613
2042	1,751	1,294	490	55	26	3	0	3,619
2043	1,757	1,297	489	55	26	3	0	3,626
2044	1,764	1,300	487	55	26	3	0	3,634
2045	1,770	1,302	486	54	26	3	0	3,641
2046	1,776	1,305	484	54	26	3	0	3,648
2047	1,782	1,308	483	54	26	3	0	3,655
2048	1,788	1,311	481	54	26	3	0	3,663
2049	1,795	1,314	480	54	26	3	0	3,671
2050	1,802	1,317	478	53	26	3	0	3,680

Projected Sales/Service (GPD)

YEAR	RES	MFR	COM	GOV	IND	OTH	IRR	TOT
2020	321	1,339	883	826	11,716	369	0	525
2021	321	1,330	870	812	11,716	369	0	523
2022	321	1,322	857	799	11,716	369	0	520
2023	320	1,315	845	787	11,716	369	0	517
2024	320	1,309	834	776	11,716	369	0	515
2025	320	1,303	823	765	11,716	369	0	513
2026	319	1,297	814	756	11,716	369	0	511
2027	318	1,291	805	747	11,716	369	0	508
2028	317	1,286	796	738	11,716	369	0	506
2029	317	1,281	788	730	11,716	369	0	503
2030	316	1,277	781	723	11,716	369	0	502
2031	316	1,274	774	716	11,716	369	0	500
2032	315	1,271	767	709	11,716	369	0	499
2033	315	1,269	761	703	11,716	369	0	498
2034	316	1,268	755	697	11,716	369	0	497
2035	316	1,266	750	691	11,716	369	0	497
2036	315	1,264	744	686	11,716	369	0	496
2037	315	1,263	739	681	11,716	369	0	494
2038	315	1,261	734	676	11,716	369	0	494
2039	315	1,260	730	672	11,716	369	0	493
2040	315	1,259	725	667	11,716	369	0	492
2041	315	1,258	721	663	11,716	369	0	492
2042	315	1,258	718	659	11,716	369	0	491
2043	315	1,257	714	655	11,716	369	0	491
2044	316	1,257	710	652	11,716	369	0	491
2045	316	1,257	706	648	11,716	369	0	491
2046	316	1,257	703	644	11,716	369	0	491
2047	317	1,257	699	641	11,716	369	0	491
2048	317	1,257	696	637	11,716	369	0	491
2049	318	1,257	692	634	11,716	369	0	491
2050	318	1,257	689	631	11,716	369	0	491

Projected Production (AF)

YEAR	SALES	NRW	PROD	% NRW	NRW GPD/Svc
2020	3,658	194	3,852	5.0%	28
2021	3,653	196	3,849	5.1%	28
2022	3,644	198	3,842	5.2%	28
2023	3,637	200	3,837	5.2%	28
2024	3,632	202	3,835	5.3%	29
2025	3,626	204	3,830	5.3%	29
2026	3,622	206	3,828	5.4%	29
2027	3,612	208	3,820	5.5%	29
2028	3,605	211	3,816	5.5%	30
2029	3,601	213	3,813	5.6%	30
2030	3,596	215	3,811	5.6%	30
2031	3,595	215	3,810	5.6%	30
2032	3,592	216	3,808	5.7%	30
2033	3,595	216	3,811	5.7%	30
2034	3,597	217	3,814	5.7%	30
2035	3,600	217	3,817	5.7%	30
2036	3,601	218	3,818	5.7%	30
2037	3,601	218	3,819	5.7%	30
2038	3,604	219	3,823	5.7%	30
2039	3,606	219	3,825	5.7%	30
2040	3,609	220	3,828	5.7%	30
2041	3,613	220	3,834	5.7%	30
2042	3,619	221	3,840	5.7%	30
2043	3,626	221	3,847	5.7%	30
2044	3,634	222	3,856	5.7%	30
2045	3,641	222	3,863	5.7%	30
2046	3,648	223	3,870	5.8%	30
2047	3,655	223	3,878	5.8%	30
2048	3,663	224	3,886	5.8%	30
2049	3,671	224	3,895	5.8%	30
2050	3,680	225	3,905	5.8%	30

Projected GPCD

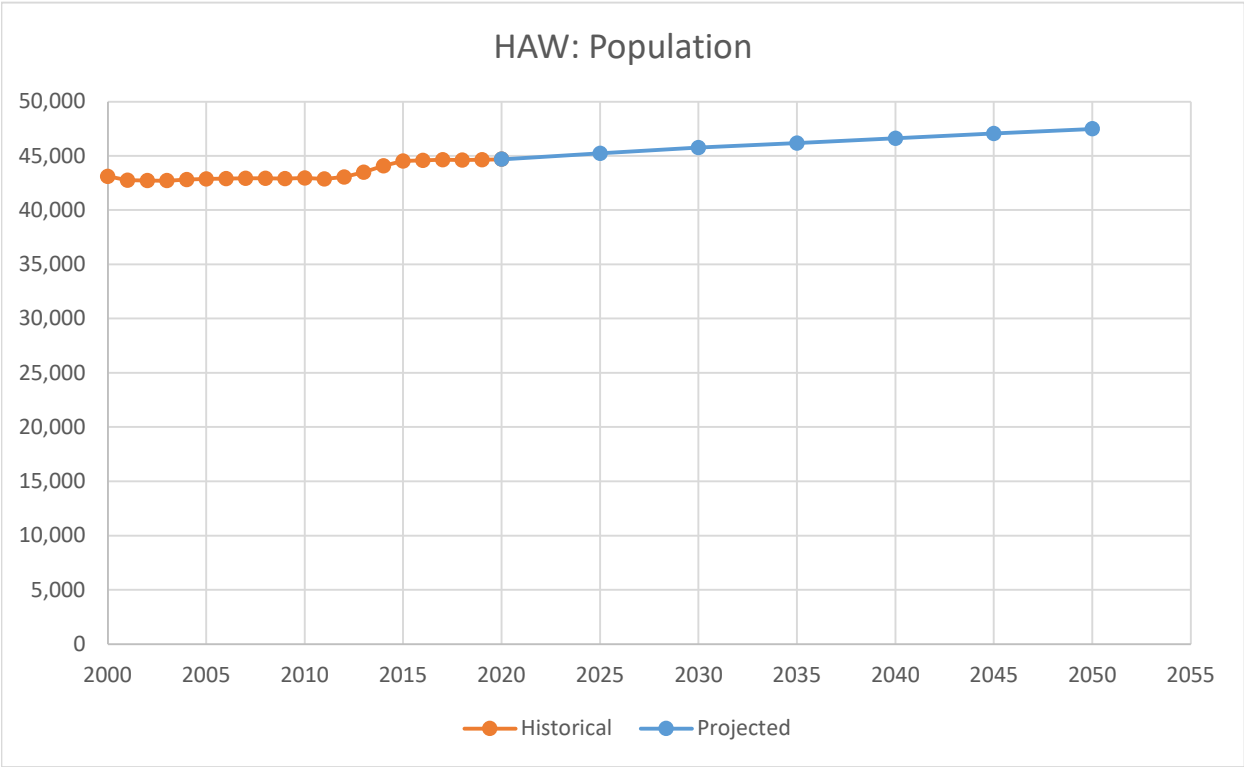
		GPCD	
YEAR	POPULATION	RESIDENTIAL	TOTAL
2020	44,690	74	77
2021	44,798	74	77
2022	44,906	73	76
2023	45,014	73	76
2024	45,123	73	76
2025	45,229	73	76
2026	45,336	73	75
2027	45,442	72	75
2028	45,550	72	75
2029	45,657	72	75
2030	45,742	72	74
2031	45,828	72	74
2032	45,914	72	74
2033	46,000	72	74
2034	46,086	72	74
2035	46,172	72	74
2036	46,258	71	74
2037	46,345	71	74
2038	46,432	71	73
2039	46,519	71	73
2040	46,606	71	73
2041	46,694	71	73
2042	46,782	71	73
2043	46,869	71	73
2044	46,957	71	73
2045	47,046	71	73
2046	47,134	71	73
2047	47,223	71	73
2048	47,312	71	73
2049	47,401	72	73
2050	47,490	72	73

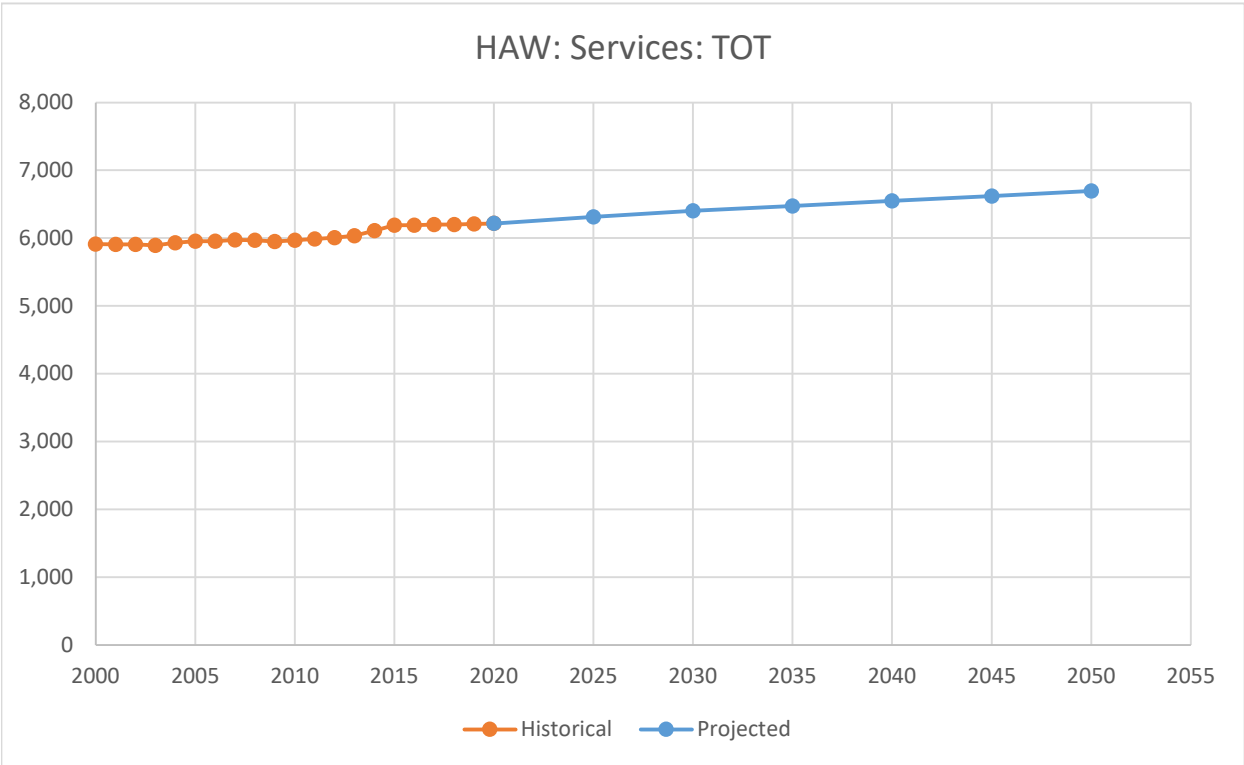
District Demand Projection Report
City of Hawthorne

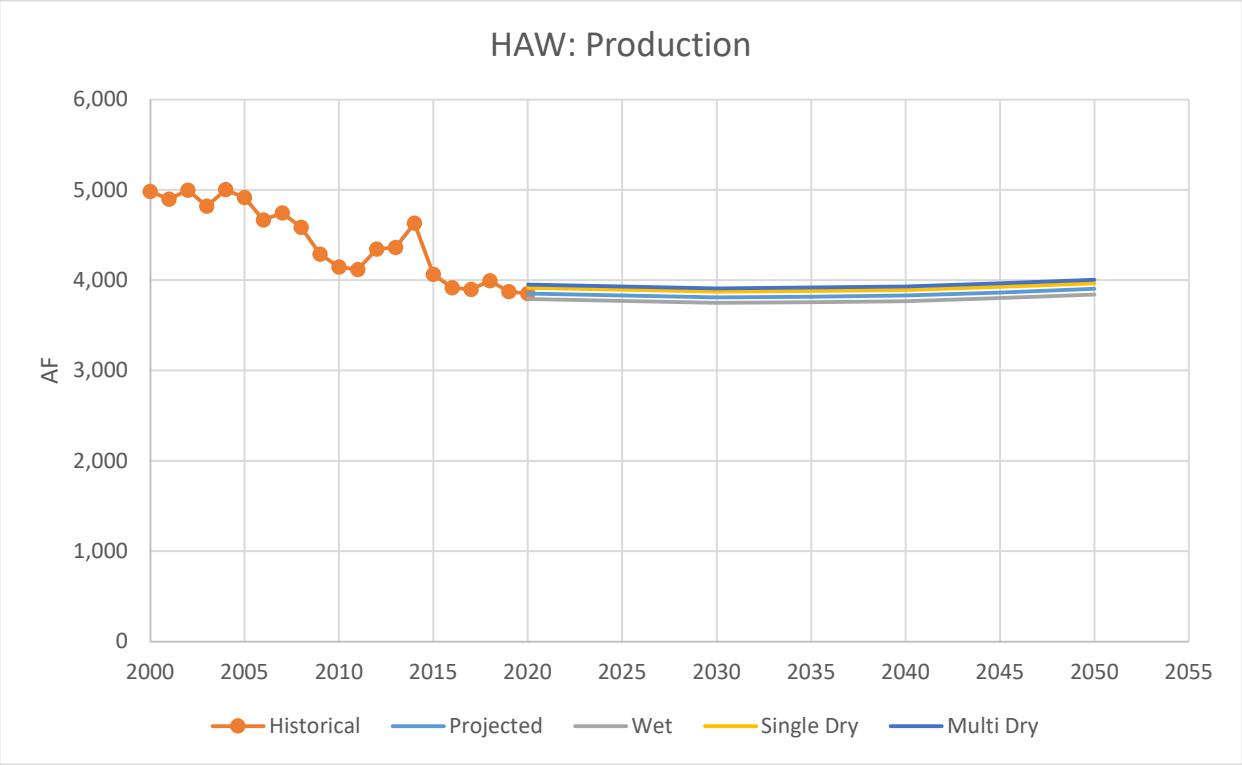
Normal, Single-Year, and Multi-Year Dry Year Demand (AF)

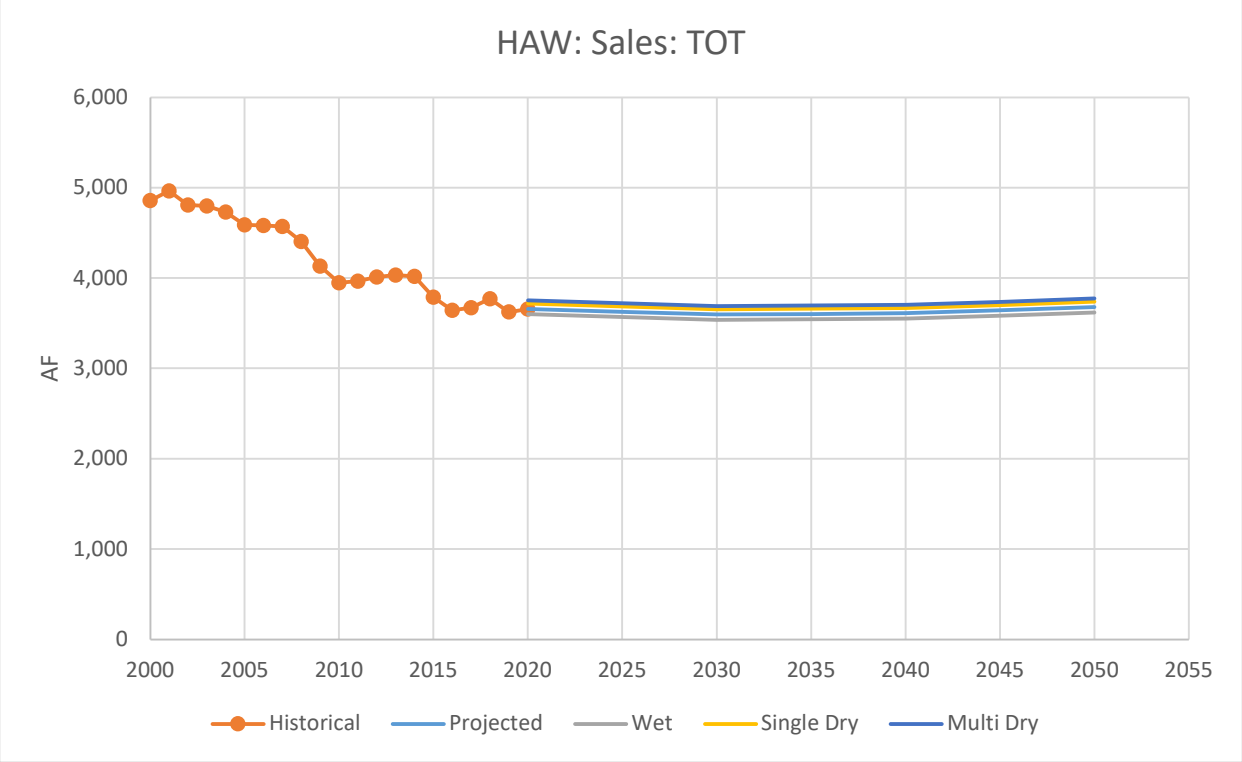
YEAR		NORMAL		SINGLE DRY YEAR	% OF NORMAL		MULTI DRY YEAR	% OF NORMAL
2020		3,852		3,914	102%		3,952	103%
2021		3,849		3,911	102%		3,950	103%
2022		3,842		3,904	102%		3,942	103%
2023		3,837		3,899	102%		3,937	103%
2024		3,835		3,896	102%		3,935	103%
2025		3,830		3,892	102%		3,930	103%
2026		3,828		3,890	102%		3,928	103%
2027		3,820		3,882	102%		3,920	103%
2028		3,816		3,877	102%		3,915	103%
2029		3,813		3,875	102%		3,913	103%
2030		3,811		3,873	102%		3,911	103%
2031		3,810		3,872	102%		3,910	103%
2032		3,808		3,869	102%		3,907	103%
2033		3,811		3,872	102%		3,910	103%
2034		3,814		3,876	102%		3,914	103%
2035		3,817		3,879	102%		3,917	103%
2036		3,818		3,880	102%		3,918	103%
2037		3,819		3,881	102%		3,919	103%
2038		3,823		3,884	102%		3,922	103%
2039		3,825		3,887	102%		3,925	103%
2040		3,828		3,890	102%		3,928	103%
2041		3,834		3,895	102%		3,934	103%
2042		3,840		3,902	102%		3,940	103%
2043		3,847		3,909	102%		3,947	103%
2044		3,856		3,918	102%		3,956	103%
2045		3,863		3,925	102%		3,964	103%
2046		3,870		3,933	102%		3,971	103%
2047		3,878		3,941	102%		3,979	103%
2048		3,886		3,949	102%		3,988	103%
2049		3,895		3,958	102%		3,997	103%
2050		3,905		3,968	102%		4,007	103%

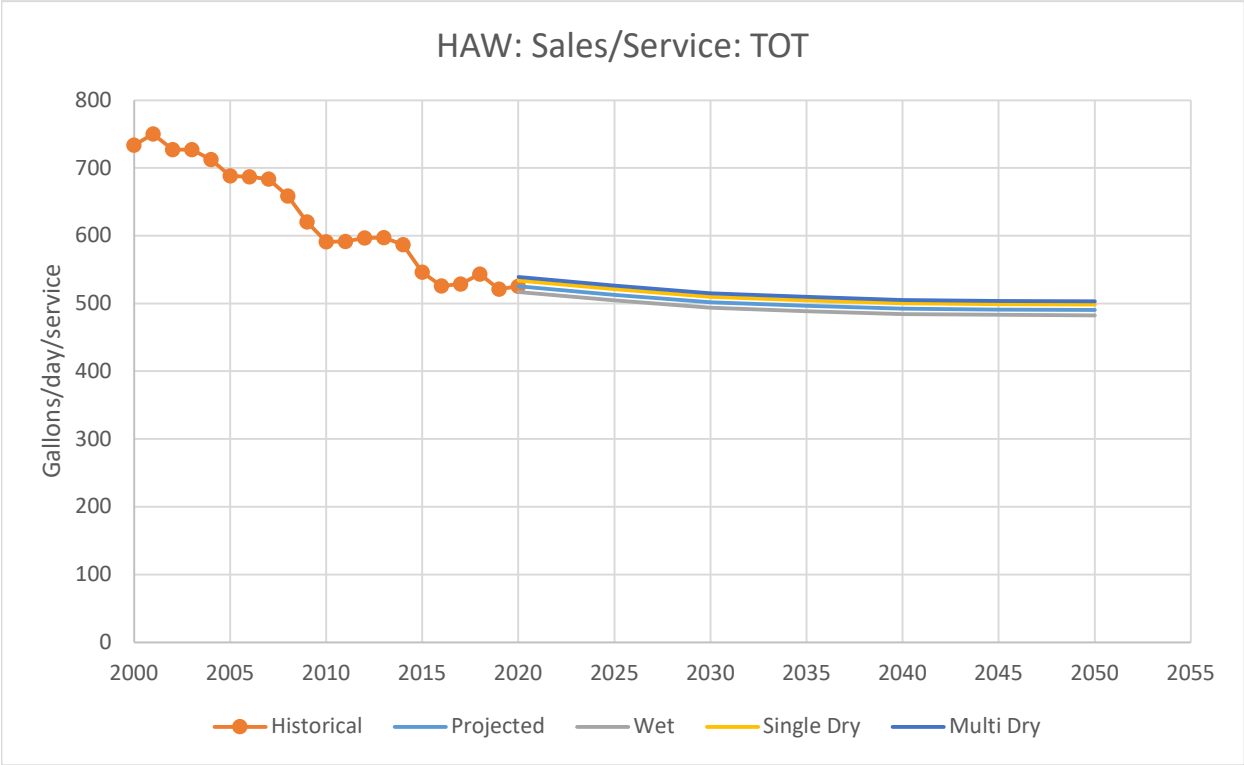
Charts

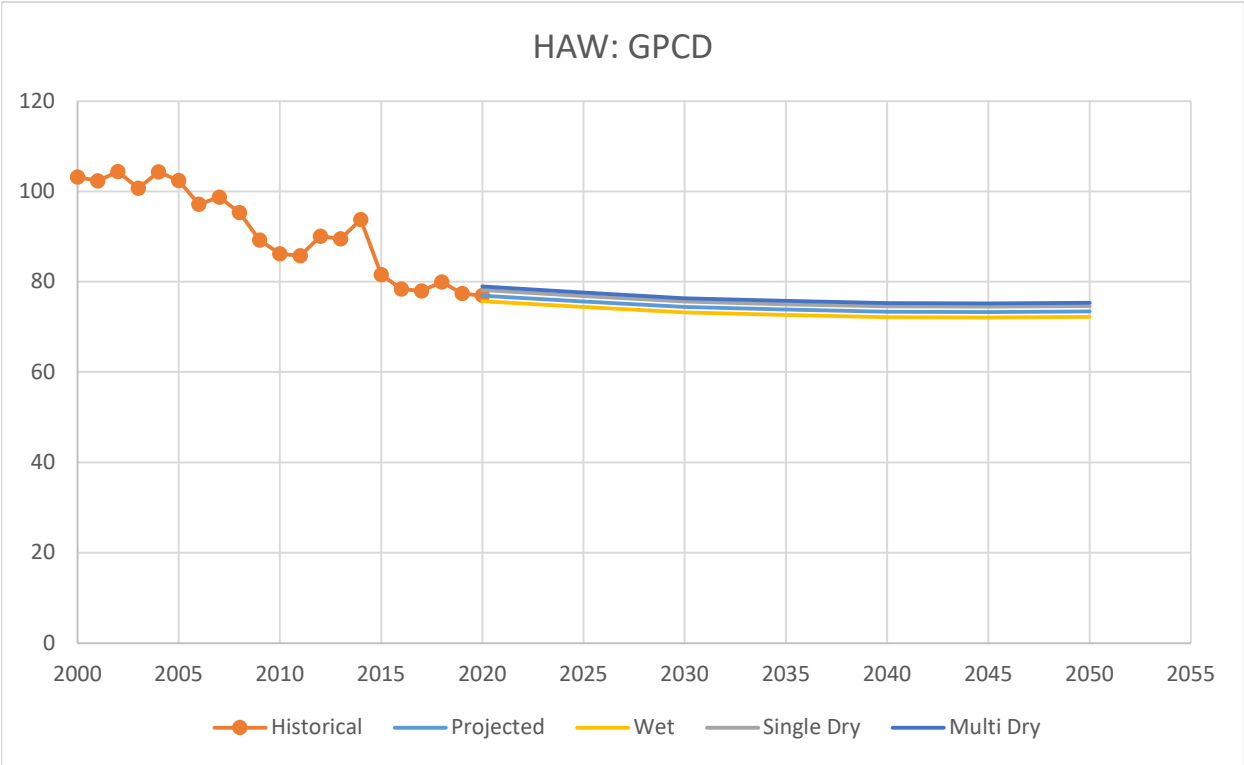

HAW: Population
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
Historical
Projected


HAW: Services: TOT
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
Historical
Projected


HAW: Production
AF
6,000
5,000
4,000
3,000
2,000
1,000
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
Historical
Projected
Wet
Single Dry
Multi Dry


HAW: Sales: TOT
AF
6,000
5,000
4,000
3,000
2,000
1,000
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
Historical
Projected
Wet
Single Dry
Multi Dry


HAW: Sales/Service: TOT
Gallons/day/service
800
700
600
500
400
300
200
100
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
Historical
Projected
Wet
Single Dry
Multi Dry


HAW: GPCD
120
100
80
60
40
20
0
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
Historical
Projected
Wet
Single Dry
Multi Dry

Appendix F: DWR SB X7-7 Verification Forms

Water Conservation Act of 2009
SB X7-7
Verification Forms

City of Hawthorne District

2020 Urban Water Management Plan
Appendix F

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	4,685	Acre Feet
	2008 total volume of delivered recycled water	103	Acre Feet
	2008 recycled water as a percent of total deliveries	2.19%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1997	
	Year ending baseline period range[3]	2006	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☐	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review

NOTES: Cal Water uses a population estimation methodology based on overlaying Census Block data from the 2000 and 2010 Censuses with the District's service area. LandView 5 and MARPLOT software are used with these data to estimate population per dwelling unit for 2000 and 2010. The per dwelling unit population estimates are then combined with Cal Water data on number of dwelling units served to estimate service area population for non-Census years. Cal Water also estimated service area population using DWR's Population Tool. The estimates prepared using Cal Water's methodology and DWR's Population Tool differed by less than one percent. Cal Water is electing to use the population estimates produced by its methodology in order to maintain consistency with population projections it has prepared in other planning documents and reports.

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1997	42,980
Year 2	1998	42,964
Year 3	1999	43,012
Year 4	2000	43,088
Year 5	2001	42,735
Year 6	2002	42,717
Year 7	2003	42,710
Year 8	2004	42,807
Year 9	2005	42,866
Year 10	2006	42,884
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	42,710
Year 2	2004	42,807
Year 3	2005	42,866
Year 4	2006	42,884
Year 5	2007	42,919
2015 Compliance Year Population		
2015		44,504

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual 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.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1997	4,976			79		-	4,898
Year 2	1998	4,799			27		-	4,772
Year 3	1999	4,842			220		-	4,623
Year 4	2000	4,980			215		-	4,765
Year 5	2001	4,897			160		-	4,737
Year 6	2002	4,995			256		-	4,739
Year 7	2003	4,817			-		-	4,817
Year 8	2004	5,000			64		-	4,936
Year 9	2005	4,915			111		-	4,804
Year 10	2006	4,665			-		-	4,665
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**4,776**
5 Year Baseline - Gross Water Use								
Year 1	2003	4,817			-		-	4,817
Year 2	2004	5,000			64		-	4,936
Year 3	2005	4,915			111		-	4,804
Year 4	2006	4,665			0		-	4,665
Year 5	2007	4,743			130		-	4,613
5 year baseline average gross water use								**4,767**
2015 Compliance Year - Gross Water Use								
2015		4,064	-		1,354		-	**2,710**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source	Wells
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1997	262		262
Year 2	1998	67		67
Year 3	1999	660		660
Year 4	2000	772		772
Year 5	2001	568		568
Year 6	2002	843		843
Year 7	2003	-		-
Year 8	2004	298		298
Year 9	2005	491		491
Year 10	2006	0		0
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2003	-		-
Year 2	2004	298		298
Year 3	2005	491		491
Year 4	2006	0		0
Year 5	2007	223		223
2015 Compliance Year - Water into Distribution System				
2015		1,814		1,814

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source	West Basin MWD			
This water source is:				
☐	The supplier's own water source			
☑	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1,997	4714.13266		4,714
Year 2	1,998	4732.69633		4,733
Year 3	1,999	4181.79808		4,182
Year 4	2,000	4208.13523		4,208
Year 5	2,001	4329.06763		4,329
Year 6	2,002	4152.38283		4,152
Year 7	2,003	4816.85431		4,817
Year 8	2,004	4702.55376		4,703
Year 9	2,005	4424.01887		4,424
Year 10	2,006	4664.19273		4,664
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,003	4816.85431		4,817
Year 2	2,004	4702.55376		4,703
Year 3	2,005	4424.01887		4,424
Year 4	2,006	4664.19273		4,664
Year 5	2,007	4519.62992		4,520
2015 Compliance Year - Water into Distribution System				
2015		2,250		2,250
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year *Fm SB X7-7 Table 3*		Surface Reservoir Augmentation					Groundwater Recharge			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	1997			-		-	79		79	79
Year 2	1998			-		-	27		27	27
Year 3	1999			-		-	220		220	220
Year 4	2000			-		-	215		215	215
Year 5	2001			-		-	160		160	160
Year 6	2002			-		-	256		256	256
Year 7	2003			-		-	0		-	-
Year 8	2004			-		-	64		64	64
Year 9	2005			-		-	111		111	111
Year 10	2006			-		-			-	-
Year 11	0			-		-			-	-
Year 12	0			-		-			-	-
Year 13	0			-		-			-	-
Year 14	0			-		-			-	-
Year 15	0			-		-			-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2003			-		-	-		-	-
Year 2	2004			-		-	64		64	64
Year 3	2005			-		-	111		111	111
Year 4	2006			-		-	0		0	0
Year 5	2007			-		-	130		130	130
2015 Compliance - Indirect Recycled Water Use										
2015				-		-	1,354		1,354	1,354

**Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

NOTES: All reported volumes are net of recovery and transmission/treatment losses.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1997	42,980	4,898	102
Year 2	1998	42,964	4,772	99
Year 3	1999	43,012	4,623	96
Year 4	2000	43,088	4,765	99
Year 5	2001	42,735	4,737	99
Year 6	2002	42,717	4,739	99
Year 7	2003	42,710	4,817	101
Year 8	2004	42,807	4,936	103
Year 9	2005	42,866	4,804	100
Year 10	2006	42,884	4,665	97
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**99**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	42,710	4,817	101
Year 2	2004	42,807	4,936	103
Year 3	2005	42,866	4,804	100
Year 4	2006	42,884	4,665	97
Year 5	2007	42,919	4,613	96
5 Year Average Baseline GPCD				**99**
2015 Compliance Year GPCD				
2015		44,504	2,710	**54**

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	99
5 Year Baseline GPCD	99
2015 Compliance Year GPCD	54

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

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☑	100%	South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**142**

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
99	142	142	**142**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*

NOTES: Hawthorne District's base daily per capita water use is below 100 gallons. Therefore the maximum target provision of SB X7-7 (CWC 10608.22) does not apply.

Appendix G: Climate Change Studies – Executive Summaries

- Climate Change – Water Resource Monitoring and Adaptation Plan – Phase 1
- Potential Climate Change Impacts on the Water Supplies of California Water Service

Climate Change-Water Resource Monitoring and Adaptation Plan – Phase 1

December 17, 2020

California Water Service
1720 North First Street
San Jose, CA 95112

Submitted by:
ICF
555 W 5th St
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Los Angeles, CA 90013

Executive Summary

Shifts in the frequency and severity of natural hazards resulting from climate change, often referred to as climate hazards, increasingly threaten water resources in California. These relevant climate hazards include reductions to snowpack, greater concentrations of precipitation in both a shorter rain season and isolated atmospheric river events, and more volatility between wet and dry water years.

To identify and prepare for impacts from these hazards, California Water Service (Cal Water) is seeking to identify climate change vulnerabilities to water supplies, operations and facilities, and to develop adaptation strategies to address those vulnerabilities through a Climate Change Water Resources Monitoring and Adaptation Plan. This body of work is intended to provide Cal Water with information to inform decisions on water system/asset management and resource planning to better prepare for and respond to current and projected changes to climate. This work represents a forward-looking approach in addressing climate risks for California utilities, as the large majority of water wholesaler and utilities have not completed climate vulnerability and adaptation plans.

In the first phase of this effort, the ICF team collaborated with Cal Water to conduct a literature and tools review as the foundation for subsequent phases of work. In Phase 2 of this project, the ICF team and Cal Water will undertake a vulnerability assessment of Cal Water's facilities and operations by developing an assessment approach that evaluates climate impacts to Cal Water, identifies asset vulnerabilities, and prioritizes climate risks. Phase 3 will focus on an assessment of climate-driven impacts to water supply resources and demand. This first phase of research and assessment will provide Cal Water with a clear "lay of the land" in understanding available methodologies and lessons learned in conducting vulnerability assessments and developing adaptation plans in the water sector. This work can provide key insights for Cal Water, industry practitioners, and Cal Water customers on best practices and needs in climate vulnerability and adaptation efforts.

This first phase will also act as a foundation for Cal Water to build on in subsequent phases of work. ICF and Cal Water will build on research and findings developed in Phase 1 to define the scope of Phases 2 and 3.

In Phase 1, the ICF team undertook three areas of review:

1) Literature and tools related to adaptation planning by water suppliers and other relevant organizations
2) Methods and data in Cal Water's 2016 Vulnerability Study "Potential Climate Change Impacts on the Water Supplies of California Water Service"
3) Climate change impact assessments and adaptation plans beyond Cal Water (wholesalers, state agencies) that could affect Cal Water's vulnerability or adaptive capacity

In the first part of our assessment, the studies we reviewed conclude that there is high certainty of climate-driven reductions to snowpack, wetter winter months, and more volatility between wet and dry water years. While California water systems are designed to operate under a wide

range of hydrologic conditions, they are not designed to absorb and adapt to the projected levels of change, which could have impacts on historical supplies from reservoir systems and groundwater systems. These studies also revealed a suite of potential approaches to vulnerability assessment and risk assessment that are applicable to Phases 2 and 3.

Key studies that the ICF team referenced include Brown and Caldwell's "Impacts of Climate Change on Honolulu Water Supplies and Planning Strategies for Mitigation", the Water Research Foundation's (WRF)'s "Mapping Climate Exposure and Climate Information Needs to Water Utility Business Functions", the Metropolitan Water District's (MWD)'s "2015 Integrated Water Resources Plan" and "2015 Urban Water Management Plan", and the U.S. Environmental Protection Agency's (EPA's) Climate Resilience Evaluation and Awareness Toolkit (CREAT).

In the second part of our review, we found that Cal Water's 2016 Climate Change Vulnerability Study undertook a high-level investigation of impacts of climate change on water supply, including surface water, groundwater, and imported water throughout Cal Water service areas. However, the study did not use uniform metrics across water suppliers, was unable to apply the currently available downscaled climate projections, and did not consider the full suite of potential climate impacts to Cal Water's systems, including impacts of compounding climate hazards and impacts on Cal Water facilities and operations.

In the third part of this work, the ICF team researched and assessed existing climate vulnerability assessments and adaptation efforts that have an impact on Cal Water's ability to mitigate impacts from climate change. This included efforts by water supply wholesalers connected to Cal Water's system, and state agencies that regulate Cal Water's supplies, operations, and planning efforts. This will allow Cal Water to build on existing actions and avoid recreating adaptation efforts that are planned or have been implemented.

Cal Water has undertaken key steps toward adaptation planning since the 2016 Vulnerability Study, such as this work to provide additional vulnerability analysis, working locally to identify and prepare to meet Sustainable Groundwater Management Act (SGMA) requirements, and coordinating with wholesalers on their identified climate-driven vulnerabilities. Phases 2 and 3 of this work will further frame system vulnerabilities within an adaptation planning context for a flexible and anticipatory response.

The ICF team's literature review focused on identifying approaches for assessing water utility vulnerabilities of assets and water resources, and adaptation planning needs (summarized in Table 1). To identify these priority approaches, the team reviewed a list of publications with input from Cal Water on key sources. We reviewed and analyzed the relevant literature for applicability to Cal Water, the advantages and fit within a robust plan for assessment, and the potential disadvantages. We highlighted those approaches in the sections on key takeaways and the applicability of approaches to Cal Water. Table 1 provides important considerations raised by the ICF team during this process.

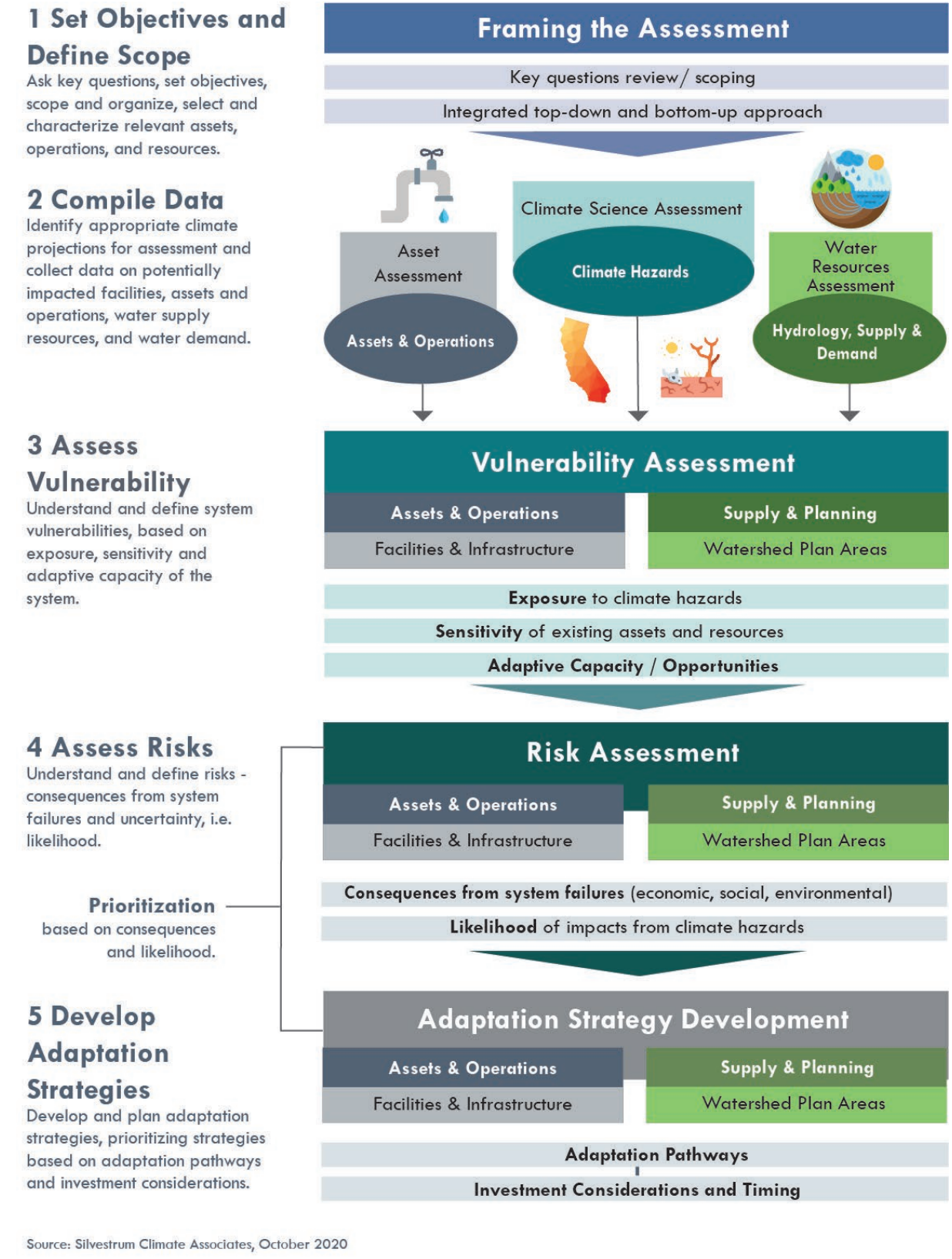
Table 1: Advantages and disadvantages of identified approaches

Identified Approach	Advantages	Disadvantages
Integrated resource-level (i.e., top-down) and asset-level (i.e., bottom-up) approaches to vulnerability assessment	• Allows for matching available information with appropriate methodologies • Supports evaluation of vulnerabilities in both water supply resources and physical systems: an integrated approach can help to address gaps in either area	• Bottom-up approaches can require extensive historical data and asset-level data • Integration of climate projections into hydrological models can be challenging. For example, data inputs for hydrological models and the outputs from climate projections may be incompatible or require additional data processing
Robust Decision-Making	• Supports identification of decisions for response under a range of potential climate futures • Supports alignment between climate impacts and operating units/business functions • Ensures the scope focuses on critical services, assets, and resources • Supports the development of adaptation pathways and measures • Provides a framework for information that can signal the need for critical decisions on adaptation	• Involves significant investment of time to identify performance metrics, business functions, and key variables • Even with significant time invested on the front end, scope can change and require rescoping later in the effort • Requires a strong understanding of utility decision-making
Applying climate projections to hydrologic modeling, future demand and planning scenarios	• Generates better understanding of impacts of extreme scenarios, snowpack loss, drought, increased temperatures, precipitation whiplash, and other hydrologic changes in water supply resources and downstream demands • Allows for modeling of a range of climate scenarios to better account for uncertainties in resource management and climate outcomes • Integrates climate projections with scaled historical time series data	• Can require substantial data, and may introduce bias (due to selected climate scenarios) • It is necessary to identify performance metrics and thresholds related to available climate variables; these can be difficult to identify and thresholds may not exist • Relies on necessary simplifying assumptions to model complex hydrologic systems
Stress testing and scenarios	• Supports management of uncertainty, especially in the absence of data • Allows for understanding of climate impacts on system performance within a risk framework	• Can require refined climate information (e.g. hydrological variables) and detailed asset information • Can require the integration of climate information into hydrological models, which may require

Identified Approach	Advantages	Disadvantages
	• Supports identification of major performance metrics and their potential for failure • Helps in understanding how the severity of impacts varies for facilities, operations, and water supplies under different climate change conditions.	significant data processing to be compatible with one another • Can result in qualitative or directional findings that don't provide straightforward adaptation responses
Engaging staff in climate change vulnerability assessments and adaptation plans	• Provides perspective for setting study parameters • Provides targeted input and data into assessment • Identifies existing data gaps and actions to address gaps • Supports development of institutional capacity for monitoring impacts, adaptation planning, and implementation	• Can be time-consuming for team members attending workshops and interviews; requires a targeted approach to ensure efficiency and that the right data is captured • Requires cross-team coordination that may be outside of "normal" communication pathways, e.g. between engineers and policy specialists
Evaluating costs of inaction	• Helps to prioritize adaptation planning needs • Creates a better understanding of the risks to Cal Water	• Requires scaling information on past costs without clear data on future impacts, creating uncertainties in estimates
Use of Flexible Adaptation Pathways	• Helps to select appropriate timing (including lead time from planning to implementation) and application of adaptation measures • Considers and compares multiple strategies in adaptation planning • Includes triggers that signal when decision-makers should decide on switching to another pathway • Allows for adaptive decisions under uncertainty by integrating points for re-assessing pathway and actions • Considers alternative external developments over time	• Does not provide a fixed timeline for actions • This approach is relatively new and may require coordination with budget cycles and external policy updates, since actions evolve over time • May push decision burden onto future decision-makers who did not develop original pathway

Our team synthesized these identified methodologies, findings, and insights into an overarching approach for characterizing climate vulnerabilities and planning for adaptation at both an asset level and water supply planning level to suit Cal Water's needs in addressing climate change impacts, shown in Figure 1.

Figure 1: Climate Assessment Framework



Source: Silvestrum Climate Associates, October 2020

Based on this review, the ICF team is making the following key recommendations for guiding Cal Water's efforts in identifying climate vulnerabilities and planning for adaptation:

- **Apply a standard conceptual framework to vulnerability assessment which integrates both top-down analysis and bottom-up analysis (see Figure 1).** The standard conceptual framework for assessing climate vulnerabilities and risks includes understanding exposure, sensitivity, and adaptive capacity, and potential impacts as components of vulnerability, and consequence and likelihood as components of risk. Top-down analysis would begin by applying downscaled Global Climate Model (GCM) projections to assess impacts on water supply resources and the bottom-up analysis would begin by identifying system sensitivities to climate hazards. These analyses are complementary.
- **Use a robust decision making (RDM) framework for vulnerability assessment and adaptation planning** by seeking to identify decisions for response under a range of potential climate futures, mapping impacts on operating units/business functions, and ensuring that the scope focuses on critical services, assets, and resources. A robust decision-making framing will support the development of adaptation pathways and measures by monitoring information that signals the need for critical decisions on adaptation.
- **Engage staff and key stakeholders in the planning process** to gain a holistic planning perspective for setting study parameters, providing targeted input into assessment and plan development, and supporting institutional capacity for adaptation.
- **Build off of the 2016 Cal Water Climate Change Impact study by applying updated climate models and projections for additional hydrologic variables** to hydrologic modeling, future demand and planning scenarios, and scaled historical time series data to better understand impacts of extremes, precipitation whiplash, and other hydrologic changes in water supply resources. We recommend presentation of this with uniform metrics for more actionable findings.
- **Assess climate impact consequence by stress-testing key water system performance metrics.** This includes developing a range of impact scenarios to understand how the severity of impacts varies for facilities, operations, and water supplies under different climate change conditions.
- **Evaluating the order of magnitude cost of inaction.** We recommend communicating consequences in terms of direct costs to Cal Water and customers without adaptation actions to prioritize adaptation response.
- **Follow a step-by-step, iterative process to adaptive management which fully aligns with potential exposure to climate hazards and vulnerabilities**, including:
    - Utilizing Flexible Adaptation Pathways in planning for selecting appropriate timing and application of adaptation measures
    - Planning for monitoring and evaluation
    - Evaluating adaptation investment decisions

During Phases 2 and 3 in which Cal Water and the ICF team will further assess vulnerability, we will frame the study outputs within a decision-making context for compatibility with adaptation planning concepts and eventual investment in adaptation measures.

Potential Climate Change Impacts on the Water Supplies of California Water Service

Prepared by

Gary Fiske and Associates, Inc.
Balance Hydrologics, Inc.

January 2016

Executive Summary

Introduction

California Water Service Company (Cal Water) provides water service to roughly 478,000 customers – about 1.7 million people – located in 83 state-wide communities in 24 service districts. Cal Water's districts rely on a variety of supply sources, including local groundwater, local surface water, and imported supplies. It is critical for Cal Water to gain a better understanding of the potential impacts of climate change on the availability of those supplies. Impacts are inherently uncertain, but Cal Water believes that the only responsible course is to carefully incorporate climate change into its ongoing water supply planning.

The present project and report represent a first step in that path. In order for Cal Water to determine how its long-term water supply planning should reflect climate change impacts, it must first have an understanding of what the impacts of climate change on its supply sources might be. That is the purpose of this study.

The work reported on here focuses on the sample of Cal Water districts highlighted in Figure ES-1. These districts account for 85% of Cal Water's total 2014 production and reflect the diversity of all Cal Water districts, including geographic, hydrologic, and climatic conditions and primary and secondary supply sources.

Changes in climate can affect the availability of local groundwater and surface water supplies, as well as purchased imported supplies. This study separately addresses the impacts on each of these for each sample district. It relies on the best available projections of changes in climate (temperature and precipitation) through the end of the century. It then uses the climate projections to examine how surface water flows and groundwater recharge rates may change.

For imported supplies, this study relies on studies already completed by wholesale providers where possible. Where no such studies have been done or where the data from such studies was unavailable, other approaches were developed to estimate climate change impacts on these supplies.

The results reported here provide an integrated view of how projected climate changes may affect water supply availability for Cal Water's service districts. The results also represent a first step in integrating potential future climate change impacts into Cal Water's ongoing supply planning. Because of the inherent uncertainties, a nuanced risk assessment may be needed to guide the incorporation of these results into long-range planning. Beyond the Company's supply/infrastructure planning, the results also can affect the Company's triennial General Rate Cases; they may also have potential operational implications.

Figure ES- 1. Cal Water Service Districts with Sample Districts Highlighted

Estimating Changes in Climate

Climate change is primarily driven by increased concentrations of greenhouse gases (GHGs) in the atmosphere. The trajectory of future climate change is a function of the rate at which those concentrations are projected to increase and the manner in which the atmosphere and oceans respond to increased concentrations. Both are difficult to model. Thus, while the scientific community overwhelmingly agrees that climate change will occur (and indeed may already have begun), the trajectory of those changes is very uncertain.

The projections of temperature and precipitation that underlie this study are based on 40 of the latest Global Circulation Models (GCMs) run as part of the Coupled Model Intercomparison Project Phase 5 (CMIP5). Generally speaking, this type of approach is termed an ensemble analysis, for which the downscaled climate projections for any particular Cal Water Service District were based on the median of the 40 downscaled GCM datasets. The GCMs used by the analysis are driven by two GHG emission pathways that bound the possible trajectories of GHG concentrations.

Impacts of Climate Change on Water Supplies

The supplies for each district consist of a mix of local surface water, local groundwater, and/or purchased imports. Climate change impacts were estimated for each of these components. The approaches used for each are described below. Based on the breakdown of district production among the supply sources, Table ES-1 shows the ranges of projected overall climate change impacts on available supply, relative to the historic average.[1] Table ES-2 groups this vulnerability into 4 categories of expected change, and Figure ES-2 maps the end-of-century vulnerability.

[1] The historical averages used here, and elsewhere in this report, are based on the entire range of historical data available for the district-specific analyses. These ranges vary across districts, and are specified within the district-specific technical memoranda.

Table ES- 1. Projected Changes in Available Supply due to Climate Change

District		Percentage Change in Supply		
		2020	2050	2100
BK	Minimum	-10%	-10%	-12%
	Maximum	-12%	-16%	-20%
VIS	Minimum	-7%	-8%	-8%
	Maximum	-9%	-10%	-14%
KRV	Minimum	-13%	-16%	-19%
	Maximum	-16%	-21%	-31%
MPS/SSF/BG	Minimum	0%	-2%	-6%
	Maximum	0%	-7%	-15%
LAS	Minimum	-3%	-3%	-10%
	Maximum	-4%	-18%	-28%
CH	Minimum	2%	2%	0%
	Maximum	3%	1%	-3%
ORO	Minimum	0%	8%	5%
	Maximum	0%	-8%	-7%
DOM/HR/PV	Minimum	0%	0%	-1%
	Maximum	0%	-2%	-3%
STK	Minimum	0%	0%	-8%
	Maximum	0%	-14%	-17%
SLN	Minimum	-6%	-6%	-6%
	Maximum	-7%	-7%	-7%

Table ES- 2. Categories of Projected Supply Vulnerability

District	Supply Vulnerability		
	2020	2050	2100
KRV	3	4	4
BK	3	3	4
LAS	1	3	4
VIS	2	2	3
STK	1	2	3
SLN	2	2	2
MPS/SSF/BG	1	1	3
DOM/HR/PV	1	1	1
ORO	1	1	1
CH	1	1	1

Districts in Category 1 expect <5% reduction in supply. Category 2 indicates a reduction of 5-10%. Category 3 indicates an expected reduction of 10-15%. Category 4 reductions exceed 15%.

Figure ES- 2. Cal Water 2100 Vulnerability to Climate Change

Vulnerability levels:
Green = Low
Yellow = Moderate
Light Red = High
Dark Red = Very High

Estimating Climate Change Impacts on Local Surface Supplies

For those Cal Water districts that obtain a portion of their water supplies from local surface water, projected average annual precipitation in each of three forecast years (2020, 2050, 2100) were compared to historical precipitation to estimate the projected average annual discharge for that forecast year. Table ES-3 shows the estimated percent changes in surface water availability compared to historical averages.

Table ES- 3. Estimated Impacts on Local Surface Supply Availability

District		Percent Change in Runoff		
		2020	2050	2100
BK	Minimum Impact	-17%	-18%	-19%
	Maximum Impact	-18%	-19%	-23%
KRV	Minimum Impact	-17%	-18%	-19%
	Maximum Impact	-18%	-19%	-23%
MPS/SSF/BG	Minimum Impact	+3%	+6%	+12%
	Maximum Impact	+3%	+5%	+6%

Of the three districts, the two in the southern San Joaquin Valley are projected to experience significant reductions in their local surface supplies. In contrast, the Bear Gulch district surface supply is forecast to increase.

Estimating Climate Change Impacts on Local Groundwater Supplies

Climate change impacts on Cal Water's local groundwater supplies result from changes in projected groundwater recharge. The three groundwater recharge components include:

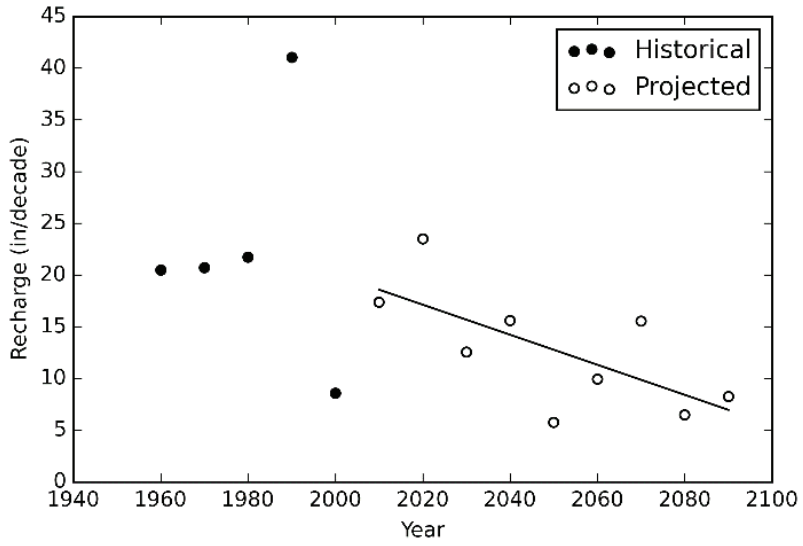
- Local river sources;
- Direct recharge from precipitation on the groundwater basin; and
- Recharge from agricultural and urban deep percolation.

The analysis first estimated the split of local recharge among these three components using geographic and geologic data, geochemical markers, and previously published reports and other supporting information. The climate change impacts on each component were then estimated, consolidated into overall projections of recharge impacts, and compared to estimated historical recharge rates.

Estimates of impacts on river recharge used the methodology for local surface supply described above. For the purposes of this phase of work, it was assumed that the change in recharge from the river is proportional to the change in total annual discharge. The estimated amount of water that will recharge directly into a groundwater basin from rain (or snow) is based on a balance of evapotranspiration (ET), precipitation rates, and soil

water capacity. Recharge is estimated using both historical and projected precipitation and temperature data. Decadal averages in projected recharge are then used to calculate long-term trends. This is illustrated in Figure ES-3 for Kern River Valley.

Figure ES- 3. Historic and Projected Decadal Direct-Precipitation Recharge for Kern River Valley



A quantitative projection of recharge from deep percolation beneath irrigated fields and urban areas is beyond the scope of this phase. Instead, districts for which a significant proportion of recharge is from agricultural and urban water are identified and expected trends under climate change of this water source for those districts are estimated. At-risk service areas with decreasing agricultural and urban water sources can be explored further in future work.

The estimated percentage impacts on each of the recharge components are multiplied by the expected fractions that each component is of total recharge to calculate the range of expected recharge reductions. Table ES-4 shows those results for each district, excluding the impacts of urban/agricultural applied water percolation.

Actual impacts on Cal Water's ability to pump groundwater may be less than these recharge reductions because the storage volumes in different basins have differing degrees of responsiveness to changes in recharge. The degree to which changes in recharge volumes translate into available groundwater supply is a function of the hydrogeologic attributes of the basin. A detailed understanding of those characteristics would require a level of modeling that is well beyond the scope of this phase of work. Instead, the estimates of basin responsiveness were based on the historical record of how the basin's water level has varied with recent climate variability. For some districts, the basin appears to be highly responsive, while for others changes in climate do not have much impact.

Table ES- 4. Projected Changes in Average Annual Groundwater Recharge

District		Percentage Change in Recharge		
		2020	2050	2100
BK	Minimum	-14%	-15%	-15%
	Maximum	-14%	-15%	-18%
VIS	Minimum	-9%	-10%	-11%
	Maximum	-9%	-10%	-14%
KRV	Minimum	-13.4%	-19%	-23%
	Maximum	-15%	-22%	-35%
MPS/SSF/BG	Minimum	-2%	-4%	-6%
	Maximum	-2%	-6%	-12%
LAS	Minimum	-7%	-8%	-13%
	Maximum	-8%	-18%	-25%
CH	Minimum	6%	4%	1%
	Maximum	6%	2%	-4%
ORO	Minimum	0%	0%	0%
	Maximum	0%	0%	0%
DOM/HR/PV	Minimum	0%	0%	0%
	Maximum	0%	0%	0%
STK	Minimum	-2%	-3%	-6%
	Maximum	-2%	-4%	-7%
SLN	Minimum	-7%	-7%	-7%
	Maximum	-7%	-7%	-7%

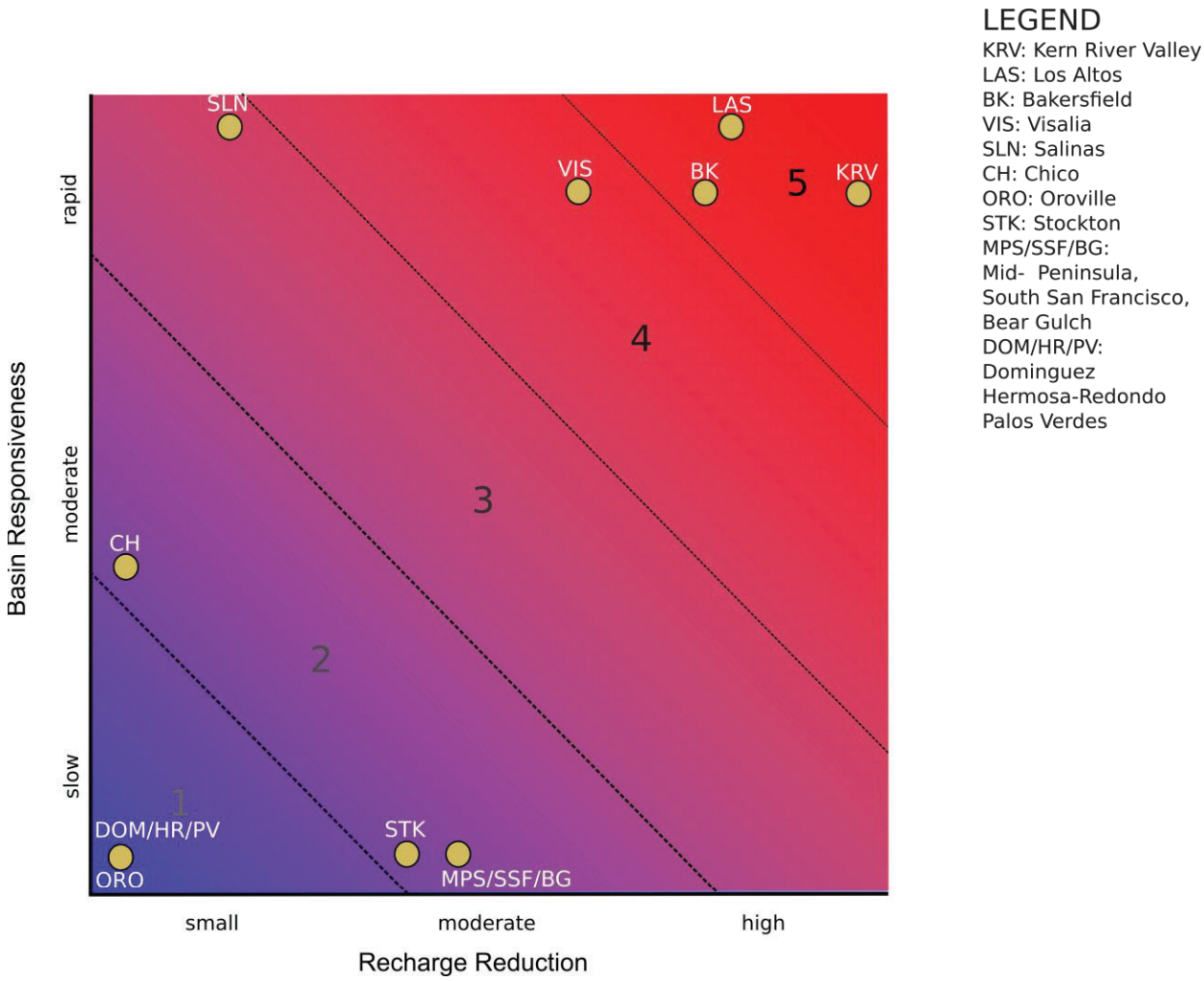
The overall risk to Cal Water's groundwater supplies for each district is based on the expected recharge reductions and the expected responsiveness of basin water level to those reductions. Table ES-5 rates each district's groundwater supply risk on a 1-5 scale, with 1 indicating little or no risk and 5 indicating high risk. Figure ES-4 is a visual depiction of these ratings.

Generally speaking, the groundwater supply impacts are large for the districts in the southern San Joaquin Valley. The Los Altos District also shows a high impact, largely because a significant portion of its recharge is from imported supplies, which are forecast to decrease significantly. Further north in the Central Valley, groundwater supplies are less affected. The Bay Area and Los Angeles Basin districts also show relatively smaller impacts.

Table ES- 5. District Groundwater Risk Ratings

District	Rating
BK	5
KRV	5
LAS	5
VIS	4
SLN	3
CH	2
MPS/SSF/BG	2
STK	2
ORO	1
DOM/HR/PV	1

Figure ES- 4. Groundwater Risk Ratings



Impacts of Climate Change on Imported Water Supplies

About half of Cal Water's supply is imported water that is purchased from wholesale suppliers. The supply and delivery systems of these suppliers are generally very complex and it is impossible within the confines of this project to independently model the impacts of climate change on those systems. The analysis therefore relied on available data, including the results of any climate change modeling that these suppliers themselves have done and other indicators of climate change impacts.

As a result, the climate change scenarios on which the estimates of impacts on different wholesale supplies are based will differ from one another and from the approach described above for the analysis of local supply impacts. The time frames of the results also differ. However, despite those limitations, important information about potential future climate change impacts on wholesale water supply availability was developed. Table ES-6 compares summary measures of central tendency for the potential district-specific climate change impacts on the availability of imported supplies.

Table ES- 6. Projected Climate Change Impacts on Imported Supplies

District	Source	Mid-Century	Late-Century
BK	SWP	-7%	-17%
LAS	SWP, CVP	-9%	-21%
ORO	SWP	-1%	-3%
MPS/SSF/BG	SFPUC	-10%	-20%
DOM/HR/PV	MWD	-1% to -2%	-2% to -5%
STK	USBR	-5%	-10%

Conclusions and Next Steps

The study results indicate significant risks for some districts. This points to the need for Cal Water to account for these risks in its future water supply planning if it is to minimize the adverse effects on its customers. The sole focus of this effort was to assess the potential climate change impacts on Cal Water's supplies. That is an important first step in integrating climate change into supply planning, but this study was not designed to:

- Analyze the impacts of these future supply limitations on Cal Water's ability to serve future customer demands. This is a function of such factors as water rights and contractual arrangements, how future demands are forecast to grow, how water conservation programming will affect those demands, and how Cal Water might modify the manner in which it operates its system.

- Develop mitigation plan to evaluate how potential supply and infrastructure investments and/or acquisition of new supplies might address any adverse impacts on water supply reliability.

- Formally assess alternative approaches to incorporating climate change in Cal Water's supply planning.

Possible next steps for Cal Water include:

- Methodological enhancements to reduce some of the uncertainties in the results reported herein;

- Development and acquisition of better and more complete data;

- Extending this study to other Cal Water districts;

- Developing a plan to mitigate anticipated climate change impacts on supply; and

- Integrating climate change into the Company's ongoing water supply planning.

Despite the study's limitations and uncertainties, three critical messages emerge:

- Cal Water supplies in the 21st century are likely to be adversely affected by climate change.

- These impacts will vary considerably across districts, depending on geography and source mix. For some districts, the impacts can be significant; for others, little or no impacts are projected.

- The impacts will generally increase over time. Anticipated late-century impacts are forecast to be significantly higher in some districts than impacts at mid-century. Moreover, during the period that climate change is forecast to increasingly constrain supplies, demands are also generally forecast to increase, further exacerbating the adverse impacts on water supply reliability.

Appendix H: Water Shortage Contingency Plan

Water Shortage Contingency Plan 2020 Update

Hawthorne District

June 2021

Chapter 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.

☑ ***CWC § 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.

This document describes the water shortage contingency plan (WSCP) for the Hawthorne District (also referred to herein as the "District"). The WSCP includes the stages of response to a water shortage caused by drought or by supply interruptions caused by infrastructure failure, regulatory mandate, or catastrophic human-caused or natural events. The primary objective of the WSCP is to ensure that the District has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions.

Specifically, this Plan includes the following chapters:

Chapter 1 - Introduction

Chapter 2 - Water Supply Reliability Analysis

Chapter 3 - Annual Water Supply and Demand Assessment Procedures

Chapter 4 - Water Shortage Levels

Chapter 5 - Shortage Response Actions

Chapter 6 - Communication Protocols

Chapter 7 - Compliance and Enforcement

Chapter 2
Water Supply Reliability Analysis

☑ ***CWC § 10632 (a) (1)*** *The analysis of water supply reliability conducted pursuant to Section 10635.*

As described in Chapter 6 of the District Urban Water Management Plan (UWMP), the District currently purchases water from the West Basin Municipal Water District (WBMWD). In addition, the District overlies and pumps water from the adjudicated West Coast Subbasin of the Los Angeles Groundwater Basin (California Department of Water Resources [DWR] Basin No. 4-011.03).

Chapter 7 of the District UWMP demonstrates that the supplies available to the District are considered highly reliable in extended drought conditions, and are expected to continue to be sufficient to meet projected District demands in all hydrologic conditions evaluated, including an extended five-year drought period. Although water shortage conditions are not expected to arise due to drought, this WSCP addresses potential water shortage conditions resulting from any cause (e.g., droughts, impacted distribution system infrastructure, regulatory-imposed shortage restrictions, catastrophic events, etc.).

In 2014, the California State Legislature enacted the Sustainable Groundwater Management Act (SGMA) with subsequent amendments in 2015. Among other things, SGMA requires the formation of Groundwater Sustainability Agencies (GSAs) and the development and implementation of Groundwater Sustainability Plans (GSPs) for groundwater basins that are designated by DWR as medium or high priority. The legislation does not require adjudicated basins, such as the West Coast Subbasin from which the Hawthorne District draws groundwater, to develop GSPs, but they are required to report their water use.

Chapter 3
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 District will conduct a Supply-Demand Assessment (SDA) to identify whether there is likely to be a water shortage condition in the coming year. This assessment will assume that the following year will experience a shortfall of 20%, corresponding to Water Shortage Level 3. Each element of the annual SDA is described below.

1. Evaluation Criteria

The evaluation criteria that will be used to identify whether the District is likely to experience a water shortage in the coming year include:

a. **Supply Well Operational Constraints -** A comparison of groundwater level elevations to well operational depths to identify the need to (1) lower pump depths, (2) deepen existing wells, or (3) site and drill additional supply wells.

b. **Treatment and Distribution System Constraints -** An assessment of the probabilities of facility and infrastructure outages and the degree to which they could limit Cal Water's ability to access, convey, or treat adequate supplies, including any planned maintenance or capital improvements over the next year that could affect its ability to provide sufficient supply to meet demands.

c. **Local Regulatory Conditions -** Evaluation of (1) any new 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.

d. **State Regulatory Conditions -** Evaluation of any state-mandated drought or water use restrictions.

These criteria will be assessed by Cal Water staff, including District staff with detailed knowledge of District operations, well conditions, and local GSA activities. The data used to support these assessments may include, but is not limited to, supply capacity, supply and pump capacity, firm capacities, tank storage capacity, groundwater level measurements, system demand, and zone demand.

2. Water Supply

The District obtains its supplies from the West Coast Subbasin (DWR Basin No. 5-021.66). Since this subbasin is not adjudicated and there are currently no GSA-mandated pumping limitations, the groundwater supply is assumed to be adequate to meet projected demands under all hydrologic conditions. The only identified potential constraints on water supply are the operational limitations and potential local regulatory conditions identified as evaluation criteria above.

3. Unconstrained Customer Demand

The demand forecast described in Chapter 4 of the District UWMP yields the anticipated unconstrained water demand, i.e. the expected water use in the absence of shortage-

caused reductions in water use. During a drought cycle, unconstrained demand typically increases due to higher than normal air temperatures and lower than normal precipitation. The supply reliability analysis and Drought Risk Assessment presented in Chapter 7 of the District UWMP accounts for this anticipated shift in unconstrained water demand, and as discussed above, even with these increases in demand the available groundwater supply is expected to be sufficient to meet these demands.

The model underlying the demand forecast described in Chapter 4 of the District UWMP has an annual time step. Cal Water has begun developing a short-term demand model with a monthly time step that will be more appropriate for the annual supply-demand assessments.

4. Planned Water Use for Current Year Considering Dry Subsequent Year

Cal Water will evaluate the anticipated supplies for the current year, assuming that the following year will be dry, as defined above, using the Evaluation Criteria identified above. Barring changes in supply availability per the Evaluation Criteria, the assumed dry subsequent year is not expected to affect the manner in which Cal Water will draw water from the basin in the current year, and the planned water use for the current year will equal the unconstrained demand.

5. Infrastructure Considerations

As part of its triennial General Rate Case applications to the California Public Utilities Commission (CPUC), Cal Water prepares a Supply-Demand Analysis (CPUC SD Analysis) for each of its Districts. The CPUC SD Analysis is an inventory of water production and pump assets that provide direct and indirect sources of supply to meet customer demands in accordance with CPUC General Order 103-A and California Code of Regulations (CCR) Title 22 Waterworks Standards. This CPUC SD Analysis is based on a combination of regulatory requirements, professional consultant recommendations, and industry standard practices, including those from the American Water Works Association (AWWA) and American Society of Civil Engineers (ASCE). It identifies specific vulnerabilities in different pressure zones within the system and evaluates the system against performance criteria that meet regulatory requirements and ensure operationally adequate levels of service.

Cal Water plans to extend the District CPUC SD Analysis to perform this analysis on an annual basis. This analysis will guide Cal Water's annual evaluation of operational treatment/distribution constraints that could potentially limit the availability of supplies. This evaluation of supply well operational constraints and treatment and distribution constraints will be completed by March 31 of each year and will assess potential impacts on supply availability. If such constraints are identified, Cal Water will

develop a plan to address these constraints, mitigate potential effects, and implement the appropriate water shortage stage of action per Chapter 5, below.

6. Other Factors

   As identified under the Evaluation Criteria above, local regulatory conditions could potentially limit the availability of supplies. Therefore, Cal Water will evaluate the development of new regulatory constraints by March 31 of each year and assess their potential impacts on supply availability. If such constraints are identified, Cal Water will develop a plan to address these constraints and mitigate potential effects and implement the appropriate water shortage stage of action per Chapter 5 below.

Consistent with California Water Code (CWC) § 10632.1, Cal Water will perform and submit an SDA to DWR by July 1st of each year beginning in 2022.

Chapter 4
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 4-1. These shortage stages are intended to address shortage caused by any condition, including the catastrophic interruption of water supplies.

Table 4-1. Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	Demand reduction (See Table 5-1)
2	Up to 20%	Demand reduction (See Table 5-1)
3	Up to 30%	Demand reduction (See Table 5-1)
4	Up to 40%	Demand reduction (See Table 5-1)
5	Up to 50%	Demand reduction (See Table 5-1)
6	>50%	Demand reduction (See Table 5-1)
NOTES:		

Shortage response actions for each of these stages are identified and discussed in Chapter 5.

Chapter 5
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 chapter describes the response actions Cal Water will take to deal with the shortages associated with each of the six stages enumerated in Chapter 4. As discussed above, the existing groundwater supply of the District is expected to be able to serve 100% of future demands under all conditions of precipitation and hydrology. However, inasmuch as Cal Water may have to implement shortage response actions to comply with state mandates, local regulatory changes, or respond to catastrophic events, it is important to carefully identify and describe the anticipated necessary actions.

5.1 Demand Reduction

The combinations of demand-reduction actions required to resolve the shortages associated with each of the six drought stages are based on Cal Water's experiences in dealing with past drought-related shortages and also include other actions deemed appropriate to achieve the required demand reductions. In order to evaluate and ensure that the right actions would be implemented with the proper level of intensity, Cal Water employed the Drought Response Tool (DRT), an Excel spreadsheet model developed by EKI Environment and Water, Inc.

The DRT provides a quantitative framework that allows Cal Water 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 those end use(s) 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 Cal Water experience; and
- The percentage of accounts assumed to implement the action, which is presumed to be the result of the intensity level of Cal Water program implementation, including but not limited to marketing and enforcement activities.

Based on the foregoing inputs, the DRT model calculates the resulting monthly savings. Cal Water adjusted the combination of actions and implementation levels to achieve the targeted savings levels at each of the six shortage stages.

In order to evaluate the robustness of the DRT model, Cal Water modeled the actions implemented during the height of the last drought for a subset of its Districts, and found that the modeled water shortage reductions were generally consistent with the responses observed in its Districts. In short, the DRT is a robust, transparent tool to tie a particular set of shortage-response actions to an expected reduction in demand.

For each of the six water shortage stages, the modeling targeted the mid-range of the required demand reduction range, ergo:

- 5% for Stage 1,
- 15% for Stage 2,
- 25% for Stage 3,
- 35% for Stage 4,
- 45% for Stage 5, and
- 55% for Stage 6.

The key DRT inputs and outputs for each of the six water shortage stages are reproduced in Attachment A.

Table 5-1 shows the water shortage reduction actions, savings assumptions, and implementation rates that are required for the District to achieve the targeted annual demand reductions for each of the six shortage stages. At each stage, there are two types of demand-reduction actions identified:

- Restrictions on customer water usage; and
- Consumption reduction actions by Cal Water to encourage decreased water usage.

The total demand reductions are governed by is a set of user-specified constraints 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. For most Cal Water districts, including Hawthorne, the following default constraints are used:

- A minimum residential indoor per capita daily usage of 25 gallons,
- A maximum residential outdoor usage reduction of 100%,
- A maximum Commercial, industrial, and institutional (CII) indoor usage reduction of 30%, and
- A maximum CII outdoor usage reduction of 100%.

Many actions are implemented across a number of stages, some at increasing implementation levels. Therefore the actions are listed as a row under the first stage at which they are implemented, and the implementation rate is shown under each stage column heading at the right. The unit savings represent a percentage savings of the end uses indicated in the table.

Because of the DRT logic described above, the format of Table 5-1 differs from that of the default DWR table.

Table 5-1. Demand Reduction Actions to Achieve Required Savings (DWR Table 8-2)

Water Shortage Response Action	End Use(s)	End Use Savings	IMPLEMENTATION RATES BY STAGE						Penalty, Charge, or Other Enforcement?
			1	2	3	4	5	6	
Stage 1: Minimal Shortage									
Restrictions									
Landscape - Limit landscape irrigation to specific times	Irrigation	**10%**	75%	N/A	N/A	N/A	N/A	N/A	Yes
Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Leaks	**100%**	15%	30%	35%	50%	50%	50%	Yes
Landscape - Restrict or prohibit runoff from landscape irrigation	Irrigation	**3%**	15%	40%	50%	75%	75%	75%	Yes
Landscape - Prohibit application of potable water to outdoor landscapes within 48 hours of measurable rainfall	Irrigation	**20%**	15%	40%	50%	50%	100%	N/A	Yes
Other - Prohibit use of potable water for washing hard surfaces	Misc. Outdoor	**17%**	15%	40%	50%	75%	75%	75%	Yes
Other - Require shut-off nozzles on hoses for vehicle washing with potable water	Misc. Outdoor	**17%**	0%	50%	50%	75%	75%	75%	
CII - Lodging establishments must offer opt out of linen service	Fixtures & Appliances	**1%**	50%	75%	75%	75%	75%	75%	Yes
CII - Restaurants may only serve water upon request	Fixtures & Appliances	**1%**	75%	75%	75%	75%	75%	75%	Yes

Water Shortage Response Action	End Use(s)	End Use Savings	IMPLEMENTATION RATES BY STAGE						Penalty, Charge, or Other Enforcement?
			1	2	3	4	5	6	
No watering of landscape of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission, the Department of Housing and Community Development, or other state agency	Irrigation	**50%**	0.25%	0.25%	0.25%	0.25%	0.25%	N/A	Yes
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	**50%**	50%	75%	75%	75%	75%	75%	Yes
Consumption Reduction									
Expand Public Information/Media Campaign	All	**0.5%**	50%	50%	50%	50%	75%	75%	No
Water Bill Inserts	All	**1%**	100%	100%	100%	100%	100%	100%	No
Promote online water waste reporting	All	**10%**	0.1%	0.2%	0.2%	0.3%	0.5%	0.5%	No
Expand Rebates or Giveaways of Plumbing Fixtures and Devices	All	**10%**	1%	1%	2%	3%	5%	5%	No
Expand Rebates for Landscape Irrigation Efficiency	All	**10%**	1%	1%	2%	3%	5%	5%	No
Expand CII Water Use Surveys	All CII uses	**5%**	1%	1%	1%	2%	2%	4%	No
Expand Res Water Use Surveys	All Residential Uses	**5%**	1%	1%	1%	2%	2%	4%	No
Stage 2: Moderate Shortage									
Restrictions									

Water Shortage Response Action	End Use(s)	End Use Savings	IMPLEMENTATION RATES BY STAGE						Penalty, Charge, or Other Enforcement?
			1	2	3	4	5	6	
Landscape - Limit landscape irrigation to 1-3 days/week	Irrigation	**15%-79%** [1]		75%	25%	25%	75%	N/A	Yes
Prohibit the use of non-recirculating systems in all new conveyer car wash and commercial laundry systems	Fixtures & Appliances	**50%**		0%	0%	0%	0%	0%	Yes
Prohibit the use of single pass cooling systems in new connections	Cooling	**50%**		0%	0%	0%	20%	20%	Yes
Consumption Reduction									
Water Efficiency Workshops, Public Events	All Residential Uses	**5%**		25%	25%	50%	50%	75%	No
Offer Water Use Surveys	All	**1%**		1%	1%	2%	2%	4%	No
Provide Rebates or Giveaways of Plumbing Fixtures and Devices	All	**10%**		1%	2%	3%	5%	5%	No
Provide Rebates for Landscape Irrigation Efficiency	All	**10%**		1%	2%	3%	5%	5%	No
Stage 3: Severe Shortage									
Restrictions									
Other - Prohibit use of potable water for construction and dust control	Misc. Outdoor	**100%**			1%	1%	1%	1%	Yes
Prohibit use of potable water for street washing	Misc. Outdoor	**100%**			1%	1%	1%	1%	Yes

Water Shortage Response Action	End Use(s)	End Use Savings	IMPLEMENTATION RATES BY STAGE						Penalty, Charge, or Other Enforcement?
			1	2	3	4	5	6	
Landscape - Prohibit irrigation of ornamental turf on public street medians with potable water	Irrigation	**100%**			20%	20%	25%	N/A	Yes
Prohibit Filling Ornamental Lakes or Ponds	Misc. Outdoor	**100%**			1%	1%	1%	1%	Yes
Consumption Reduction									
Home or Mobile Water Use Reports	All	**5%**			15%	50%	50%	50%	No
Decrease Frequency and Length of Line Flushing	Non Revenue Water	**25%**			50%	50%	50%	50%	No
Reduce System Water Loss	Non Revenue Water	**100%**			10%	10%	10%	20%	No
Increase Water Waste Patrols/Enforcement	All	**10%**			1%	2%	4%	5%	No
Implement Drought Rate Structure and Customer Water Budgets (Res)	All Residential Uses	**30%-60%** [2]			40%	25%	30%	50%	Yes
Implement Drought Rate Structure and Customer Water Budgets (CII)	All CII uses	**10%-30%** [3]			40%	25%	30%	50%	Yes
Stage 4: Critical Shortage									
Water Use Restrictions									
Prohibit vehicle washing except with recirculated water or low-volume systems	Misc. Outdoor	**10%**				50%	50%	50%	Yes
Prohibit use of water for recreational purposes such as water parks and the filling of pools	Misc. Outdoor	**100%**				1%	1%	1%	Yes
Consumption Reduction Actions									
Promote / Expand Use of Recycled Water	Irrigation	**100%**				0%	0%	0%	No

Water Shortage Response Action	End Use(s)	End Use Savings	IMPLEMENTATION RATES BY STAGE						Penalty, Charge, or Other Enforcement?
			1	2	3	4	5	6	
Stage 5: Emergency Shortage									
Water Use Restrictions									
Require net zero demand Increase on new water service connections	All	**100%**					0.25%	0.25%	Yes
Prohibit single-pass cooling systems	Cooling	**50%**					20%	20%	Yes
Consumption Reduction Actions									
Require Pool Covers	Misc. Outdoor	**28%**					10%	10%	Yes
Stage 6: Extreme Shortage									
Water Use Restrictions									
Moratorium on new water service connections	All	**100%**						0.25%	Yes
Landscape - Prohibit all landscape irrigation	Irrigation	**100%**						75%	Yes
		Cumulative Annual Savings	**7%**	**13%**	**25%**	**32%**	**46%**	**56%**	

NOTES:
1. Watering restricted to no more than 3 days/wk in Stage 2 and Stage 3; no more than 2 days/wk in Stage 4; no more than 1 day/wk in Stage 5.
2. Residential water budgets of up to 30% for Stage 3, up to 40% for Stage 4; 50% for Stage 5, up to 60% for Stage 6.
3. CII water budgets of up to 10% for Stage 3, up to 20% for Stage 4, up to 30% for Stages 5 and 6.

5.2 Supply Augmentation

As indicated in Table 5-2, Cal Water has not identified any supply augmentation actions to assist in resolving future District water shortages. As identified in Chapter 3, Cal Water may consider deepening or drilling new wells if necessary due to declining groundwater levels. However, Cal Water considers these actions to be operational changes (described in Section 5.3), rather than accessing a new supply source.

Table 5-2. 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)*
NOTES:			

5.3 Operational Changes

As discussed above in Chapter 3, the primary operational change that Cal Water will consider in the District is extracting groundwater from a lower elevation, utilizing the deeper wells that are drilled following identification of this need as part of the annual SDA. As identified in Table 5-1, the District will also decrease the frequency and length of line flushing under Stage 3 and beyond. The District will also evaluate the potential benefits of altering other maintenance cycles and expediting infrastructure repairs to improve system efficiency, to the extent feasible.

In addition, Cal Water is actively participating in the GSP development process, and will make whatever operational changes are necessary to conform to the results of that process.

5.4 Mandatory Restrictions

The water shortage response actions included in Table 5-1 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 Chapter 7.

5.5 Emergency Response Plan

Cal Water has an Emergency Response Plan (ERP) in place that coordinates the overall response to a disaster.

The ERP addresses the Company's responsibilities in emergencies associated with natural disaster, human-caused emergencies, and technological incidents. It provides a framework for coordination of response and recovery efforts within the Company in cooperation with local, State, and Federal agencies, as well as other public and private organizations. The ERP establishes an emergency organization to direct and control operations during a period of emergency by assigning responsibilities to specific personnel.

The ERP does the following:

- It conforms to the State mandated Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS), and it effectively structures emergency response at all levels in compliance with the Incident Command System (ICS).
- It establishes response policies and procedures, while providing the Company clear guidance related to emergency planning.
- It describes and details procedural steps necessary to protect lives and property.
- It outlines coordination requirements.
- It provides a basis for unified training and response exercises to ensure compliance.

The Hawthorne District has installed backup power generators at some of its well sites, booster sites, and pump storage sites that can be operated in the event of a system wide power outage. A complete loss of power has never been experienced, but the generators have been used in the past to overcome localized outages.

No interties have been established at this time. An intertie with Golden State Water Company existed at one time and is under evaluation as to whether it is beneficial to re-establish it.

5.6 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.

Cal Water's ERP includes information on various hazards and a related fault map overlying the District. The Los Angeles County Emergency/Disaster Plans and Annexes, which include

additional discussion of area earthquake risk and mitigation, can be found at https://ceo.lacounty.gov/emergencydisaster-plans-and-annexes.

5.7 Shortage Response Action Effectiveness

Table 5-1 above shows the effectiveness of the specific demand-reduction actions and implementation levels necessary for the District to achieve the targeted savings for each water shortage stage. The bottom row indicates the total annual cumulative savings expected to be reached at each water shortage stage level. Additional details, including anticipated savings on a month-by-month basis are provided in the DRT model inputs and outputs included in Attachment A.

Chapter 6
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.

Cal Water intends to escalate communication to customers and stakeholders, as needed, throughout any water shortage situation to help ensure they are aware of current conditions, any water use restrictions that are in effect, and the many ways Cal Water can help them reduce their water use. Cal Water's outreach efforts include multiple channels, including bill messages, bill inserts, direct mail, email, letters, social media, print, radio, music streaming services, TV, over-the-top media, movie theatre advertising, and group presentations.

These efforts will expand on current Cal Water outreach efforts and will be customized to the needs at the time of the shortage to ensure a proper channel mix so that the maximum audience is reached as efficiently as possible.

Chapter 7
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.*

7.1 Water Use Restrictions

In accordance with Rule 14.1, Cal Water is currently authorized to take the following actions to enforce the water use restrictions:

First Violation: Cal Water shall provide the customer with a written notice of violation.

Second Violation: If Cal Water verifies that the customer has used potable water for non- essential, wasteful uses after having been notified of the first violation, Cal Water shall provide the customer with a second written notice of violation and is authorized to install a flow-restricting device on the customer's service line.

Cal Water has submitted to the California Public Utilities Commission (CPUC) an update to Rule 14.1 and Schedule 14.1, for approval, to align with the restrictions identified in this WSCP. Rule14.1 and Schedule 14.1 are discussed in more detail in Chapter 8. The current versions of Rule 14.1 and Schedule 14.1 can be found on the Cal Water website.

7.2 Non-Essential, Wasteful Uses

In the event that more stringent measures are needed, implementation of Schedule 14.1 would be requested from the CPUC. If implemented, Cal Water is currently authorized to take the following actions when its personnel verify a customer is using potable water for non-essential, wasteful uses.

First Violation: Cal Water shall provide the customer with a written notice of violation. In addition, Cal Water is authorized to take the following actions:

A. If the customer currently receives service through a metered connection, install a real- time water measurement device on the customer's service line and provide the customer with access to information from the device. The cost of the device, including installation and ongoing operating costs, may be billed to the customer, and nonpayment may result in discontinuance of service.

B. If the customer does not currently receive service through a metered connection, install a water meter on the customer's service line, charge the

customer for water use pursuant to Cal Water's metered service tariffs and rules, and install a real-time water measurement device on the customer's service line and provide the customer with access to information from the device. The cost of the device, including installation and ongoing operating costs, may be billed to the customer, and nonpayment may result in discontinuance of service.

Second Violation: If Cal Water verifies that the customer has used potable water for non- essential, wasteful uses after having been notified of the first violation, Cal Water shall provide the customer with a second written notice of violation. In addition to the actions prescribed under the first violation above, Cal Water is authorized to take the following actions:

A. Apply the following waste of water penalties, which are in addition to any other charges authorized by this Schedule or other Cal Water tariffs.
   i. If Stage 1 is in effect, $25
   ii. If Stage 2 is in effect, $50
   iii. If Stage 3 is in effect, $100
   iv. If Stage 4 is in effect, $200
B. At its sole discretion, waive the waste of water penalty if the customer participates in a water use evaluation provided by Cal Water and/or provides documentation to Cal Water proving that a drip irrigation system, micro spray irrigation system, high-efficiency sprinkler system, or properly programmed smart irrigation controller has been installed, after a notice of violation was delivered, and is in use at the customer's service address.

Third Violation: If Cal Water verifies that the customer has used potable water for non-essential, wasteful uses after having been notified of the second violation, Cal Water shall provide the first and second violations above, Cal Water is authorized to take the following actions:

A. A. Apply the following waste of water penalties, which are in addition to any other charges authorized by this Schedule or other Cal Water tariffs.
   i. If Stage 1 is in effect, $50
   ii. If Stage 2 is in effect, $100
   iii. If Stage 3 is in effect, $200
   iv. If Stage 4 is in effect, $400

B. At its sole discretion, waive the waste of water surcharge if the customer participates in a water use evaluation provided by Cal Water and/or provides documentation to Cal Water proving that a drip irrigation system, micro spray irrigation system, high- efficiency sprinkler system, or properly programmed smart irrigation controller has been installed, after notice of violations have been delivered, and is in use at the customer's service address.

Fourth Violation: If Cal Water verifies that the customer has used potable water for non- essential, wasteful uses after having been notified of the third violation, Cal Water shall provide the customer with a fourth written notice of violation. In addition to actions set forth in previous violations prescribed above, Cal Water is authorized to install a flow- restricting device on the customer's service line.

Egregious Violations: Notwithstanding the foregoing framework for penalties, customers who Cal Water has verified are egregiously using potable water for non-essential, wasteful uses are subject to having a flow- restricting device installed on their service line. After providing the customer with one notice of egregious violation, either by direct mail or door hanger, which documents the egregious use of potable water for non-essential, wasteful uses and explains that failure to correct the violation may result in the installation of a flow-restricting device on the customer's service line, Cal Water is authorized to install a flow-restricting device on the customer's service line.

Cal Water plans to submit to the CPUC an update to Schedule 14.1 to align with this WSCP including, but not limited to, consistency with the new six stage shortage level structure.

7.3 Drought Surcharges

Water budgets and associated drought surcharges are included as actions in Table 5-1. Cal Water will implement such actions through the implementation of Schedule 14.1.

Chapter 8
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.

Cal Water is an investor-owned water utility that is regulated by the CPUC. As such, it does not have the authority to adopt resolutions or ordinances. Rule 14.1, as filed with the CPUC, serves as Cal Water's restrictions on non-essential, wasteful uses of potable water. In the event that more stringent measures are required, Cal Water may request the addition of Schedule 14.1 which serves as Cal Water's WSCP and includes staged mandatory reductions and drought surcharges. Cal Water 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 and to ensure consistency with local resolutions and ordinances.

On April 1, 2016, Cal Water filed its current Schedule 14.1 with the CPUC.[1] The Schedule lays out the staged mandatory reductions and drought surcharges associated with Cal Water's WSCP. This filing is consistent with Resolution W-5034, adopted by the Commission on April 9, 2015, ordering compliance with requirements of the State Water Resources Control Board (SWRCB).

Schedule 14.1 is an extension of Rule 14.1. The compliance and enforcement information presented in Chapter 7 is based on the current versions of both Rule 14.1 and Schedule 14.1, which are based, in part, on the specific SWRCB requirements associated with the Governor's Executive Order B-29-15, which required statewide cutbacks to address the unprecedented 2011-2017 drought, as well as the additional information required pursuant to the CWC.

Cal Water has submitted an update to Rule 14.1 and Schedule 14.1 to the CPUC, for approval, to align with this WSCP.

[1] For reference, the current versions of Rule 14.1 and Schedule 14.1 are included as Attachment B.

In the event of a determination of a water shortage Cal Water shall declare a water shortage emergency in accordance with the Water Code Chapter 3 (commencing with Section 350) of Division 1 and implement the Water Shortage Contingency Plan at the appropriate Stage.

Chapter 9
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.

In 2008, the CPUC approved the creation of a Water Revenue Adjustment Mechanism (WRAM) and Modified Cost Balancing Accounts (MCBA). The goals of the WRAM and MCBA are to sever the relationship between sales and revenue to remove the disincentive to reduce water use. The WRAM and MCBA are designed to be revenue neutral in order to ensure that both the utility and ratepayers are neither harmed nor benefitted.

In 2020, the CPUC ordered that regulated water utilities may not include the continuation of the WRAM and MCBA in their next general rate case filing but may propose the use of a Monterey-Style Revenue Adjustment Mechanism and Incremental Cost Balancing Account. As such, the WRAM and MCBA will no longer be in place for Cal Water beginning in 2023.

During a water shortage, Cal Water will file for a Drought Memorandum Account, or similar, to track incremental shortage-related expenses to be reviewed by the CPUC for future recovery in rates. Cal Water will also file for a Drought Lost Revenue Memorandum Account, or similar, to track reduced sales to be reviewed by the CPUC for future recovery in rates.

Both the Drought Memorandum Account and Drought Lost Revenue Memorandum Account are mechanisms that have been approved by the CPUC in previous droughts.

Chapter 10
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.*

During the period 2014-16, in order to effectively respond to the drought, Cal Water realigned its organizational structure to ensure sufficient resources were available to implement its WSCP. The day-to-day implementation was overseen by the Director of Drought Management & Conservation, with the assistance of the Drought Response Project Manager. The Director of Drought Management & Conservation reported to a team of Cal Water's Officers (Steering Committee), including the President & CEO, the Vice President of Corporate Communications & Community Affairs, the Vice President of Customer Service & Information Technology, the Vice President of Operations, and the Vice President of Continuous Improvement.

Reporting to the Director of Drought Management & Conservation was a team of functional leads, each responsible for managing individual portions of Cal Water's Plan. This team included the Director of Customer Service, the Water Conservation Manager, the Manager of Corporate Communications, the Water Supply Manager, and the Government & Community Relations Manager.

Cal Water would implement a similar structure to effectively manage future water shortages.

This structure includes regular meetings with reporting on items such as:

- Aggregate customer demands,
- Customer compliance with water use restrictions,
- Current and projected water supply conditions,
- Customer outreach activities,
- Customer service inquiries, and
- Operations activities (e.g., water flushing activities, leak repairs, etc.).

Chapter 11
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.*

Cal Water's Drought Steering Committee utilizes an adaptive management process to regularly assess and determine adjustments and changes to the implementation of the WSCP. These refinements are implemented by the Director of Drought Management & Conservation (or equivalent) through the team of functional leads.

Chapter 12
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.*

The deadline for public comments on the WSCP was June 22, 2021, the date of the public hearing. The final WSCP was formally adopted by Cal Water's Vice President of Customer Service & Chief Citizenship Officer on June 20, 2021. The District UWMP includes a copy of the signed Resolution of Plan Adoption and contains the following:

- Letters sent to and received from various agencies regarding the UWMP and WSCP, and
- Correspondence between Cal Water and participating agencies.

This UWMP and WSCP were submitted to DWR within 30 days of adoption and by the July 1, 2021 deadline. The submittal was done electronically through Water Use Efficiency Data Portal, an online submittal tool. The adopted WSCP was also sent to the California State Library and to the cities and counties listed in Table 10-1 of the District UWMP.

On or about May 24, 2021, an electronic version of the draft 2020 UWMP and WSCP was made available for review on Cal Water's website: https://www.calwater.com/conservation/uwmp.

Attachment A
Key Drought Response Tool Tables and Charts

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

Hawthorne

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	5%
Drought Stage	Stage 1
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw

Drought Response Tool

1 - Home

Hawthorne

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 PROFILE	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

Hawthorne

For questions about this tool or for additional information, contact:

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2 - Input Baseline Year (2020) Water Use

Hawthorne

Input Baseline Year (2020) Production and Water Use

Units: (mg)

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 (mg)	Residential Water Use (mg)	COM-GOV Water Use (mg)	Industrial Water Use (mg)	Non-Revenue Water Use (mg)	Total R-GPCD	Comments
October	110	80	19	1	9	58	
November	98	75	19	1	4	56	
December	99	77	17	1	4	55	
January	98	78	19	1	0	56	
February	93	75	17	1	0	60	
March	100	72	18	1	9	52	
April	99	81	16	1	2	60	
May	111	76	13	1	21	55	
June	109	85	17	1	6	63	
July	111	92	19	1	-1	66	
August	115	90	19	1	6	65	
September	108	83	17	1	7	62	

3 - Baseline Year (2020) Water Use Profile

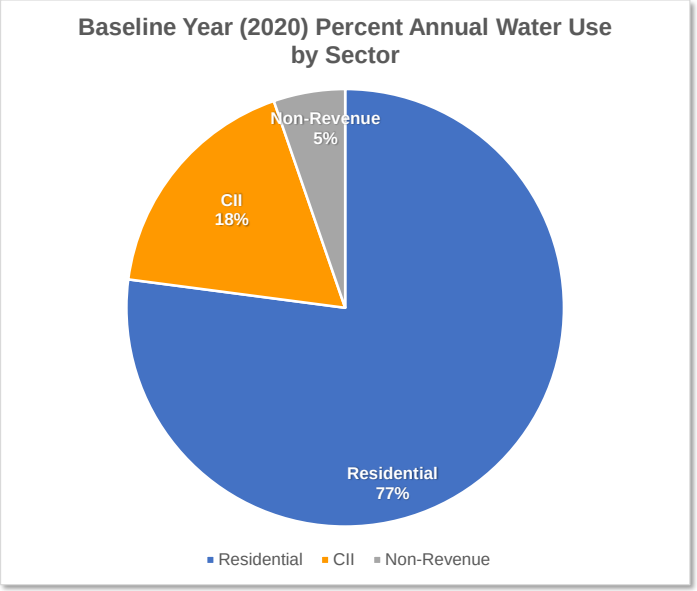
Hawthorne

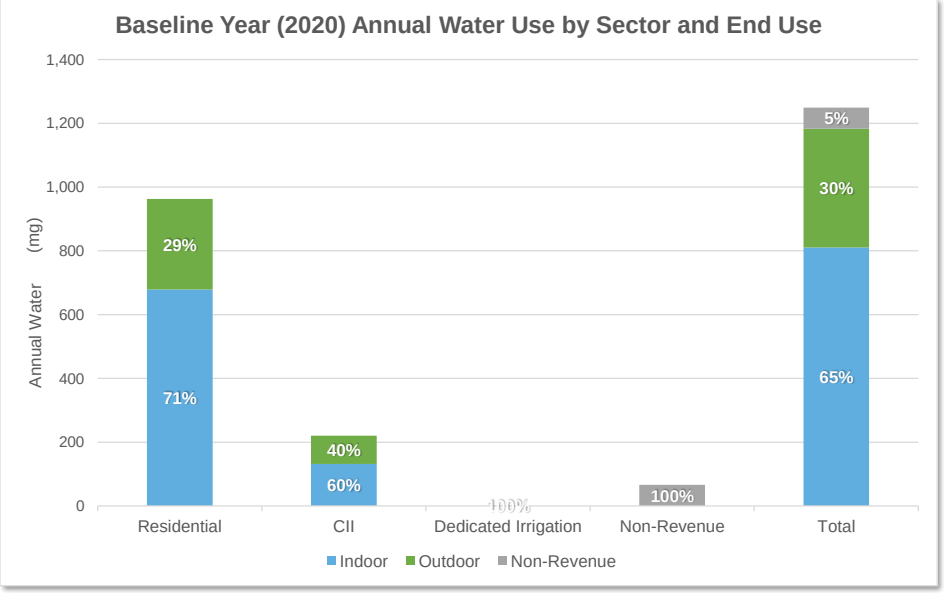
Baseline Year (2020) Annual Water Use Summary

Units: (mg)

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.

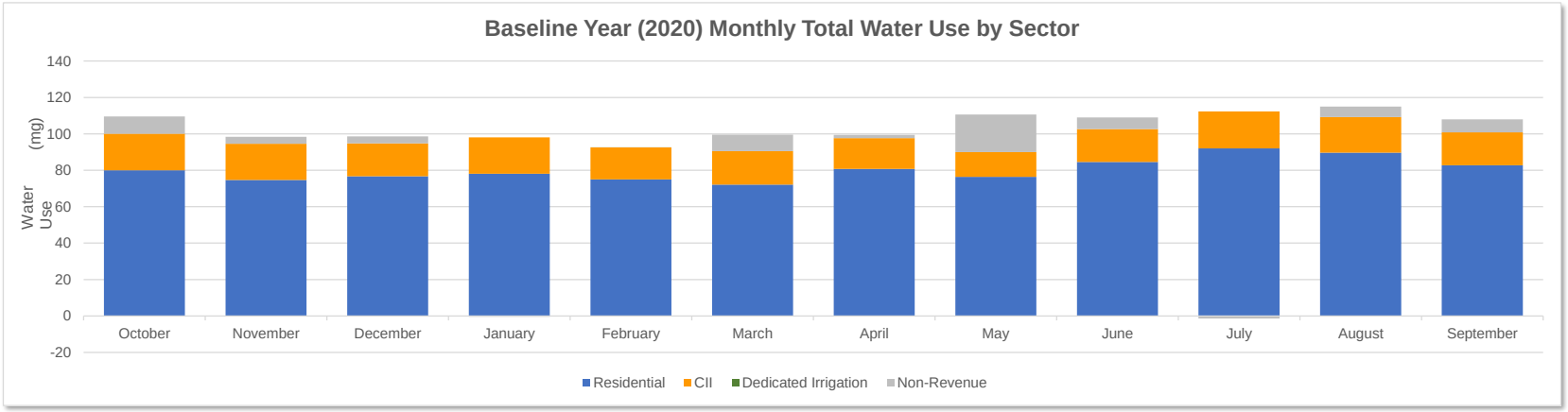
Water Use	Total Production (mg)	Water Use (mg)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	1,249	963	220	0	66	
Total Indoor	811	679	132	--	--	
Total Outdoor	372	284	89	0	--	
Total Non-Revenue	66	--	--	--	66	
Total Indoor %	65%	71%	60%	0%	--	
Total Outdoor %	30%	29%	40%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

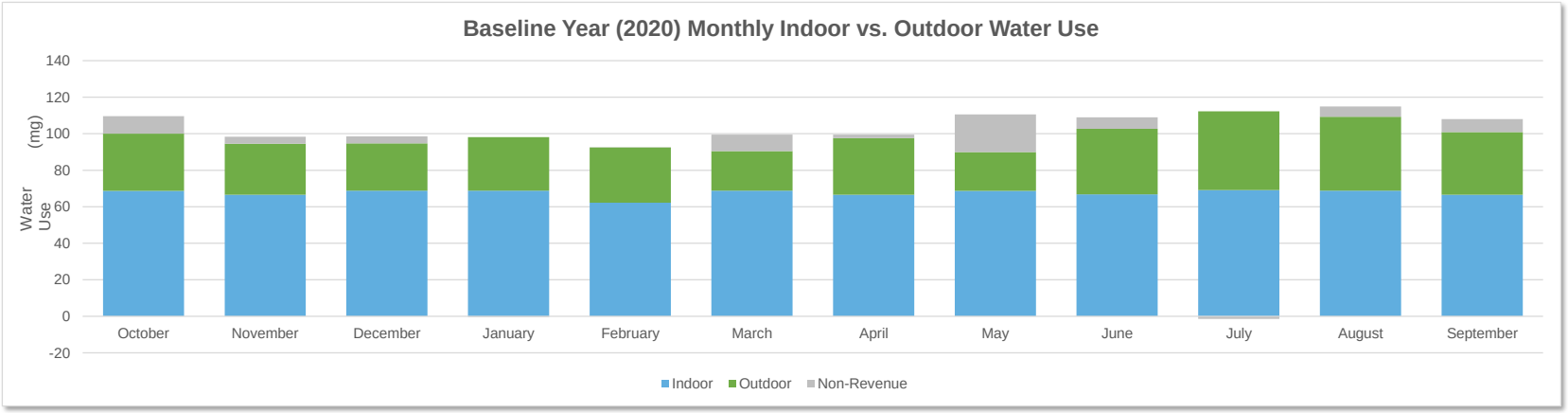




3 - Baseline Year (2020) Water Use Profile

Hawthorne





5 - Estimated Water Savings - Stage 1

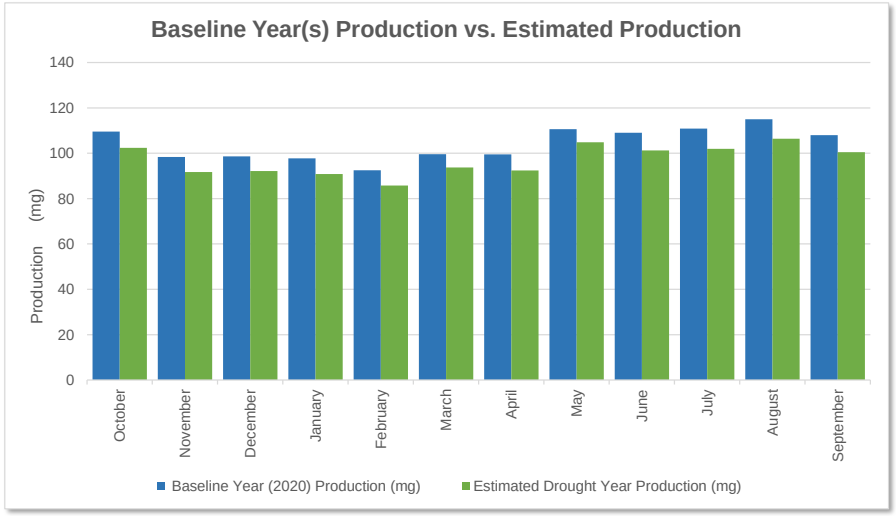
Hawthorne

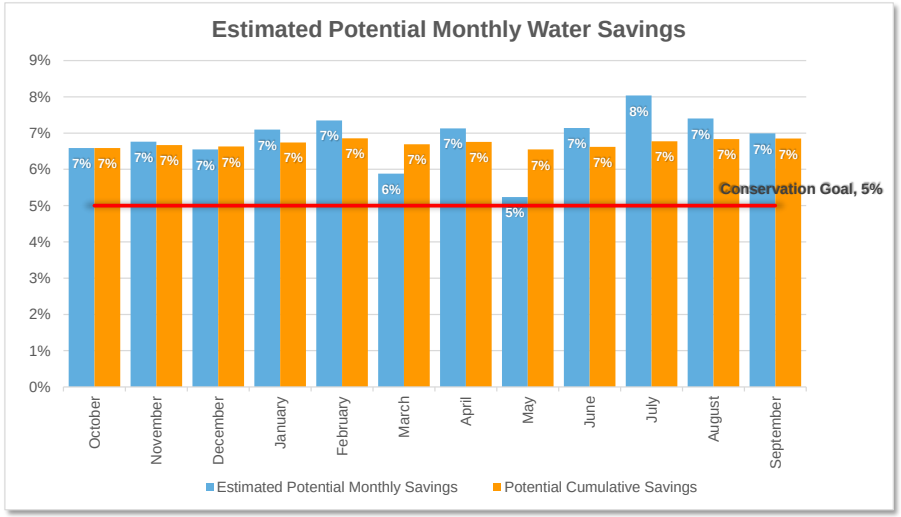
Estimated Monthly Water Use and Savings Summary

Units: (mg)

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 (2020) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
October	110	102	7%	7%	5%	
November	98	92	7%	7%	5%	
December	99	92	7%	7%	5%	
January	98	91	7%	7%	5%	
February	93	86	7%	7%	5%	
March	100	94	6%	7%	5%	
April	99	92	7%	7%	5%	
May	111	105	5%	7%	5%	
June	109	101	7%	7%	5%	
July	111	102	8%	7%	5%	
August	115	106	7%	7%	5%	
September	108	100	7%	7%	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

Hawthorne

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	15%
Drought Stage	Stage 2
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw

5 - Estimated Water Savings - Stage 2

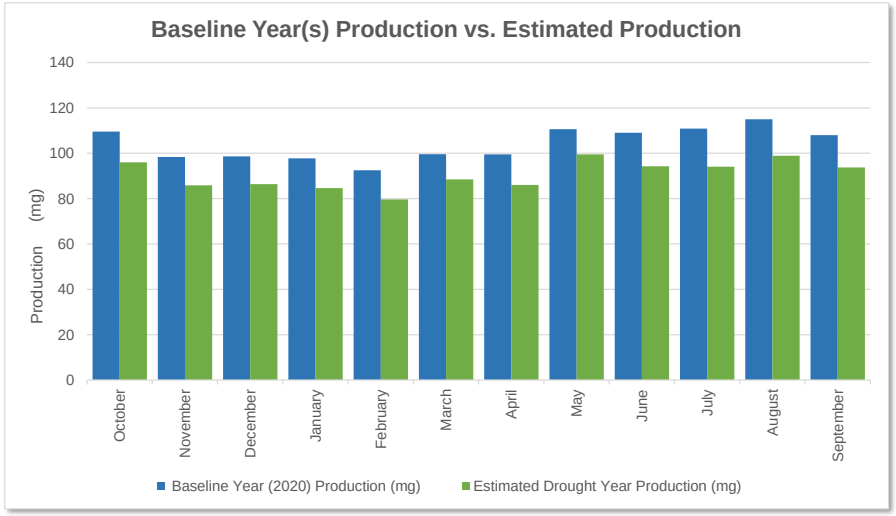
Hawthorne

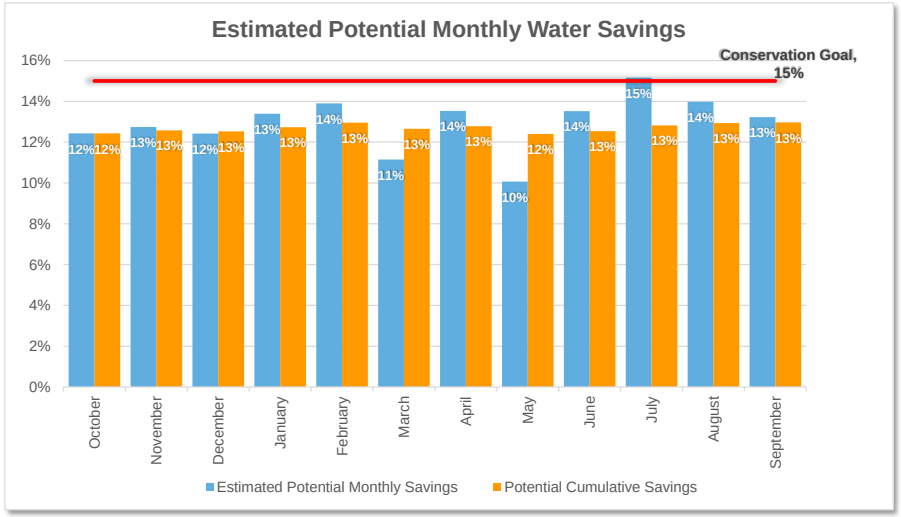
Estimated Monthly Water Use and Savings Summary

Units: (mg)

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 (2020) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
October	110	96	12%	12%	15%	
November	98	86	13%	13%	15%	
December	99	86	12%	13%	15%	
January	98	85	13%	13%	15%	
February	93	80	14%	13%	15%	
March	100	88	11%	13%	15%	
April	99	86	14%	13%	15%	
May	111	99	10%	12%	15%	
June	109	94	14%	13%	15%	
July	111	94	15%	13%	15%	
August	115	99	14%	13%	15%	
September	108	94	13%	13%	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

Hawthorne

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	25%
Drought Stage	Stage 3
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw

5 - Estimated Water Savings - Stage 3

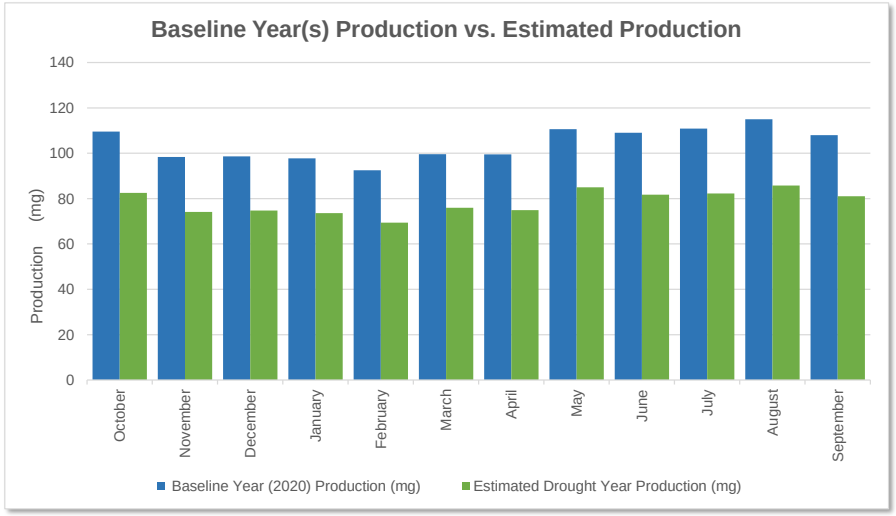
Hawthorne

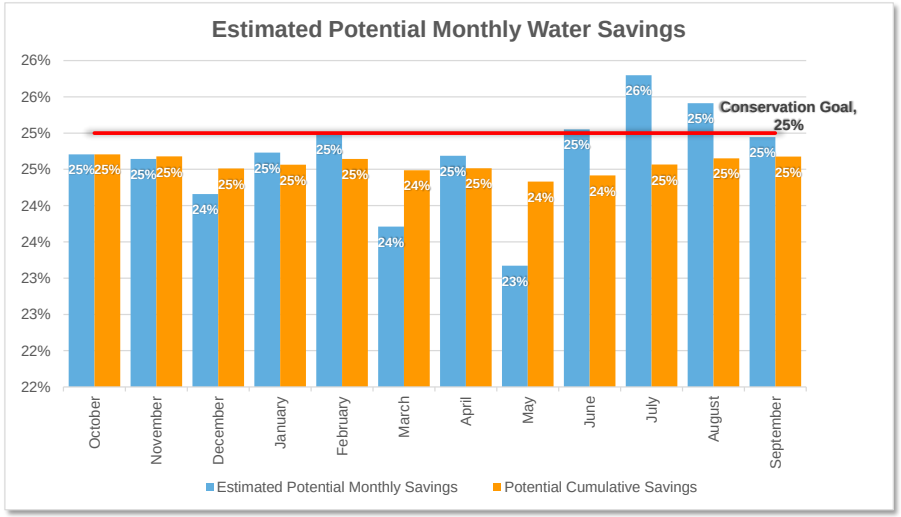
Estimated Monthly Water Use and Savings Summary

Units: (mg)

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 (2020) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
October	110	82	25%	25%	25%	
November	98	74	25%	25%	25%	
December	99	75	24%	25%	25%	
January	98	74	25%	25%	25%	
February	93	69	25%	25%	25%	
March	100	76	24%	24%	25%	
April	99	75	25%	25%	25%	
May	111	85	23%	24%	25%	
June	109	82	25%	24%	25%	
July	111	82	26%	25%	25%	
August	115	86	25%	25%	25%	
September	108	81	25%	25%	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

Hawthorne

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	35%
Drought Stage	Stage 4
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw

5 - Estimated Water Savings - Stage 4

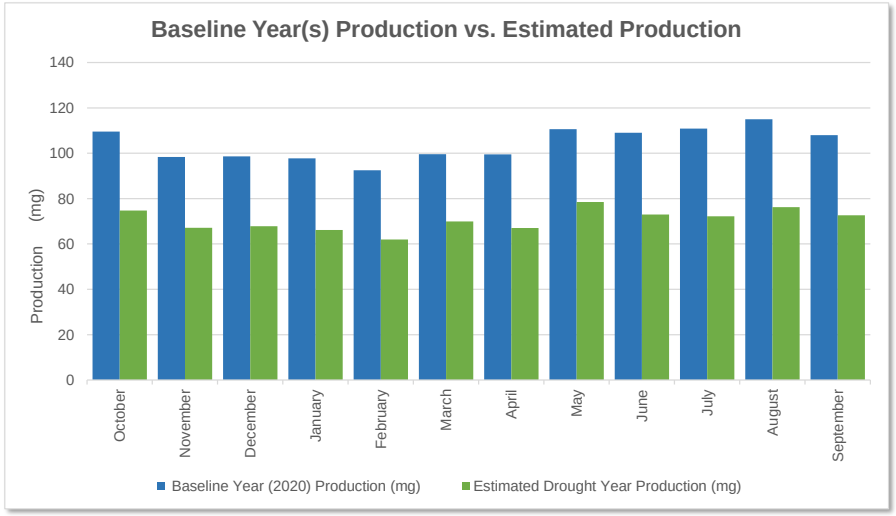
Hawthorne

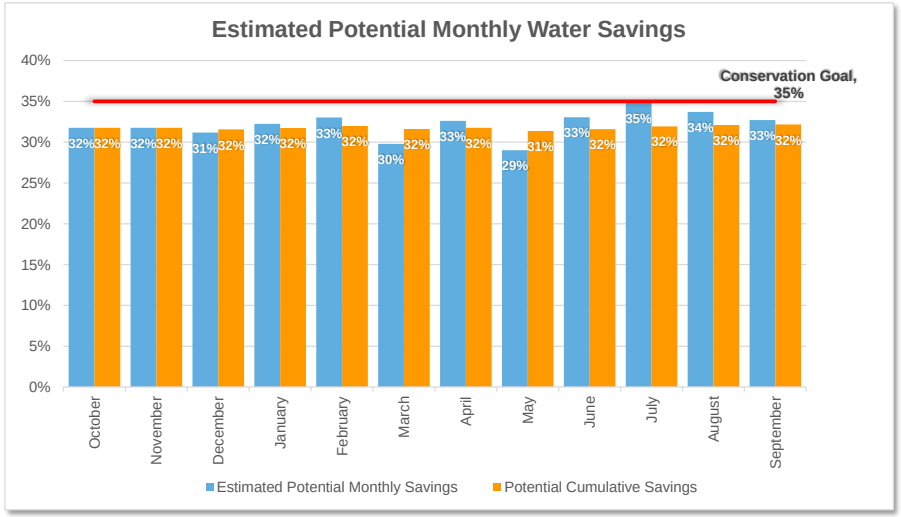
Estimated Monthly Water Use and Savings Summary

Units: (mg)

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 (2020) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
October	110	75	32%	32%	35%	
November	98	67	32%	32%	35%	
December	99	68	31%	32%	35%	
January	98	66	32%	32%	35%	
February	93	62	33%	32%	35%	
March	100	70	30%	32%	35%	
April	99	67	33%	32%	35%	
May	111	79	29%	31%	35%	
June	109	73	33%	32%	35%	
July	111	72	35%	32%	35%	
August	115	76	34%	32%	35%	
September	108	73	33%	32%	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

Hawthorne

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	45%
Drought Stage	Stage 5
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw

5 - Estimated Water Savings - Stage 5

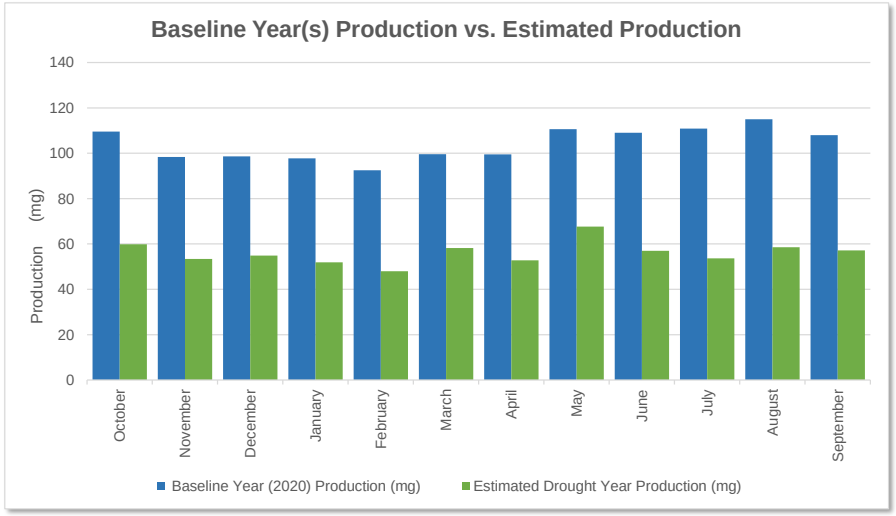
Hawthorne

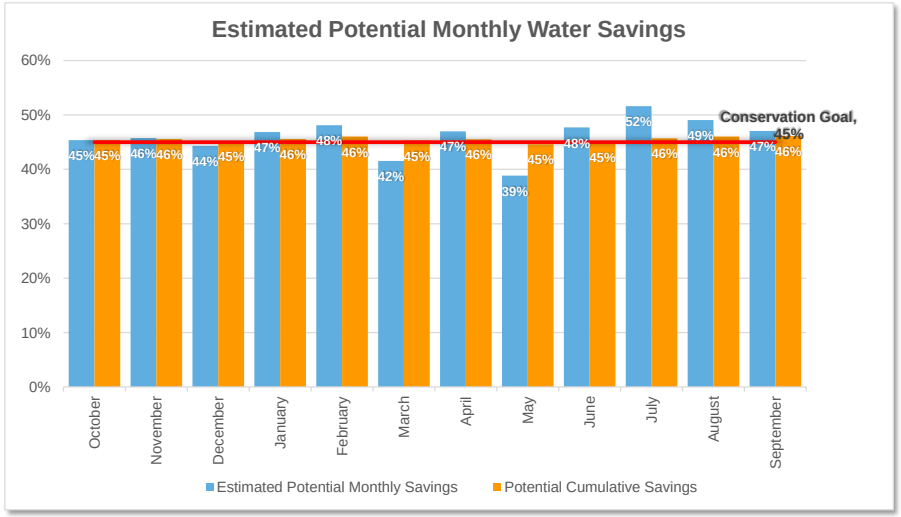
Estimated Monthly Water Use and Savings Summary

Units: (mg)

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 (2020) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
October	110	60	45%	45%	45%	
November	98	53	46%	46%	45%	
December	99	55	44%	45%	45%	
January	98	52	47%	46%	45%	
February	93	48	48%	46%	45%	
March	100	58	42%	45%	45%	
April	99	53	47%	46%	45%	
May	111	68	39%	45%	45%	
June	109	57	48%	45%	45%	
July	111	54	52%	46%	45%	
August	115	59	49%	46%	45%	
September	108	57	47%	46%	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

Hawthorne

Enter Agency Information	
Agency Name	Hawthorne
Total Population Served	44,685
Conservation Goal (%)	55%
Drought Stage	Stage 6
Number of Residential Accounts	5,559
Number of Commercial, Industrial, and Institutional (CII) Accounts	656
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2020
Percentage of Residential Indoor Use During Minimum Month (%)	80%
Percentage of Comm-Gov Indoor Use During Minimum Month (%)	80%
Comments	haw

5 - Estimated Water Savings - Stage 6

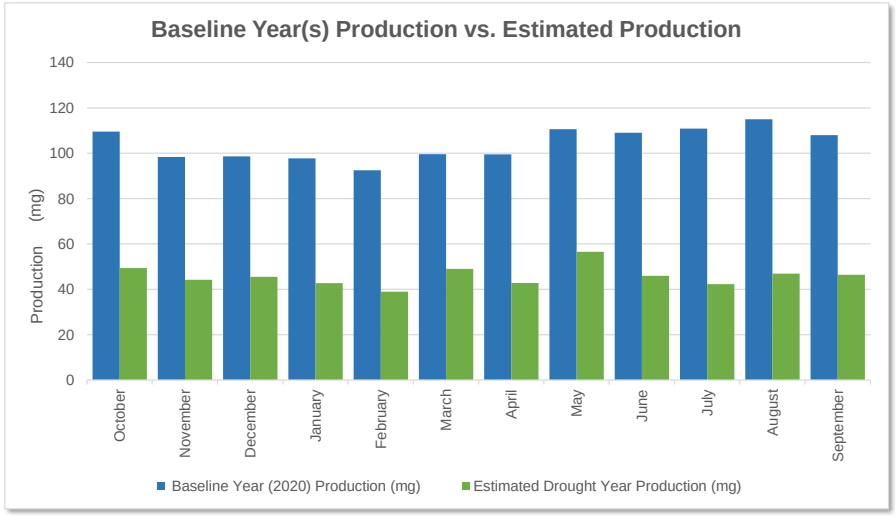
Hawthorne

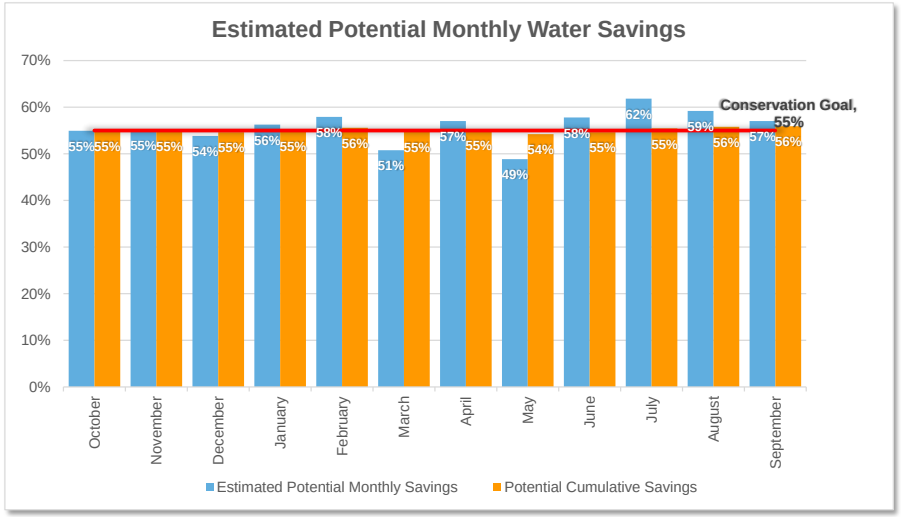
Estimated Monthly Water Use and Savings Summary

Units: (mg)

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 (2020) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
October	110	49	55%	55%	55%	
November	98	44	55%	55%	55%	
December	99	45	54%	55%	55%	
January	98	43	56%	55%	55%	
February	93	39	58%	56%	55%	
March	100	49	51%	55%	55%	
April	99	43	57%	55%	55%	
May	111	57	49%	54%	55%	
June	109	46	58%	55%	55%	
July	111	42	62%	55%	55%	
August	115	47	59%	56%	55%	
September	108	46	57%	56%	55%	





Attachment B
CPUC Rule and Schedule 14.1

Rule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN (continued)

(Page 1) (T)

A. APPLICABILITY (N)

1. This schedule applies to all of California Water Service's regulated ratemaking areas in California, as well as Grand Oaks Water.

B. GENERAL INFORMATION

1. All expenses incurred by utility to implement Rule 14.1, and Schedule 14.1, and requirements of the California State Water Resources Control Board ("Water Board") that have not been considered in a General Rate Case or other proceeding shall be accumulated by Cal Water in a separate memorandum account, authorized in Resolution W-4976, for disposition as directed or authorized from time to time by the Commission.
2. To the extent that a Stage of Mandatory Water Use Restrictions in Schedule 14.1 has been activated, and a provision in this Rule is inconsistent with the activated Stage in Schedule 14.1, the provisions of Schedule 14.1 apply.

C. DEFINITIONS

For the purposes of this Rule, the following terms have the meanings set forth in this section.

1. "Commercial nursery" means the use of land, buildings or structures for the growing and/or storing of flowers, fruit trees, ornamental trees, vegetable plants, shrubs, trees and similar vegetation for the purpose of transplanting, for use as stock or grafting, and includes the retail sale or wholesale distribution of such items directly from the premises/lot.
2. "Drip irrigation system" means a non-spray, low-pressure, and low volume irrigation system utilizing emission devices with a precipitation or flow rate measured in gallons per hour (GPH), designed to slowly apply small volumes of water at or near the root zone of plants or other landscaping.
3. "Flow rate" means the rate at which water flows through pipes, valves, and emission devices, measured in gallons per minute (GPM), gallons per hour (GPH), inches per hour (IPH), hundred cubic feet (Ccf), or cubic feet per second (CFS).
4. "Flow-restricting device" means valves, orifices, or other devices that reduce the flow of potable water through a service line, which are capable of passing a minimum of 3 Ccf per person, per month, based upon the U.S. Census calculation of the average number of people in a household in the area.
5. "High-efficiency sprinkler systems" means an irrigation system with emission devices, such as sprinkler heads or nozzles, with a precipitation or flow rate no greater than one IPH.
6. "Irrigation" means the application of potable water by artificial means to landscape.
7. "Irrigation system" means the components of a system meant to apply water to an area for the purpose of irrigation, including, but not limited to, piping, fittings, sprinkler heads or nozzles, drip tubing, valves, and control wiring.
8. "Landscape" means all of the outdoor planting areas, turf areas, and water features at a particular location.
9. "Measureable rainfall" means any amount of precipitation of more than one-tenth of an inch (0.1").
10. "Micro spray irrigation system" means a low-pressure, low-volume irrigation system utilizing emission devices that spray, mist, sprinkle, or drip with a precipitation or flow rate measured in GPH, designed to slowly apply small volumes of water to a specific area. (N)

(continued)

Rule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN (continued)

(T)

C. DEFINITIONS (Continued) (N)

11. "Ornamental landscape" means shrubs, bushes, flowers, ground cover, turf, lawns, and grass planted for the purpose of improving the aesthetic appearance of property, but does not include crops or other agricultural products or special landscape areas.

12. "Ornamental turf" means a ground cover surface of grass that can be mowed and is planted for the purpose of improving the aesthetic appearance of the property, but does not include crops or other agricultural products or special landscape areas.

13. "Plumbing fixture" means a receptacle or device that is connected to a water supply system, including, but not limited to, pipes, toilets, urinals, showerheads, faucets, washing machines, water heaters, tubs, and dishwashers.

14. "Potable water" means water supplied by Cal Water which conforms to the federal and state standards for human consumption.

15. "Properly programmed" means a smart irrigation controller that has been programmed according to the manufacturer's instructions and site-specific conditions.

16. "Real-time water measurement device" means a device or system that provides regularly updated electronic information regarding the customer's water use.

17. "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape onto other areas.

18. "Smart irrigation controller" means an automatic device used to remotely control valves that operate an irrigation system that has been tested by an American National Standards Institute accredited third-party certifying body or laboratory in accordance with the Environmental Protection Agency's WaterSense program (or an analogous successor program), and certified by such body or laboratory as meeting the performance and efficiency requirements of such program, or the more stringent performance and efficiency requirements of another similar program.

19. "Special landscape area" means an area of the landscape dedicated solely to edible plants and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

20. "Turf" means a ground cover surface of grass that can be mowed.

21. "Water feature" means a design element where open, artificially supplied water performs an aesthetic or recreation feature, including, but not limited to, ponds, lakes, waterfalls, fountains, and streams.

22. "Water use evaluation" means an evaluation of the efficiency of indoor water-using devices, including, but not limited to, measurement of flow rates for all existing showerheads, faucets, and toilets, inspection for leaks, and providing written recommendations to improve the efficiency of the indoor water-using fixtures and devices and/or an evaluation of the performance of an irrigation system, including, but not limited to, inspection for leaks, reporting of overspray or runoff, and providing written recommendations to improve the performance of the irrigation system. (N)

(continued)

Rule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN (continued)

(Page 3) (T)

D. ENFORCEMENT (N)

Each Stage of this Rule establishes certain restrictions on the use of potable water. Violating the restrictions set forth in a particular Stage while it is in effect is declared a non-essential, wasteful use of potable water. Subject to the schedule and conditions outlined below, Cal Water is authorized to install a flow-restricting device on the service line of any customer when its personnel verify a customer is using potable water for non-essential, wasteful uses. No person shall have any right or claim in law or in equity, against Cal Water because of, or as a result of, any matter or thing done or threatened to be done pursuant to the restrictions on using potable water for non-essential, wasteful uses.

1. FIRST VIOLATION: Cal Water shall provide the customer with a written notice of violation.

2. SECOND VIOLATION: If Cal Water verifies that the customer has used potable water for non-essential, wasteful uses after having been notified of the first violation, Cal Water shall provide the customer with a second written notice of violation and is authorized to install a flow-restricting device on the customer's service line. Cal Water shall not be held liable for any injuries, damages, and/or consequences arising from the installation of a flow restricting device.

3. NOTICES OF VIOLATION:

   A. Written notices of violation provided to customers pursuant to this Rule shall document the verified violation and alert the customer to the fact that future violations of the restricted uses of potable water may result in the installation of a flow-restricting device on the customer's service line or the discontinuation of the customer's service.

   B. If Cal Water elects to install a flow-restricting device on a customer's service line, the written notice of violation shall explain that a flow-restricting device has or will be installed on the customer's service line, document the steps the customer must take in order for the flow-restricting device to be removed, and explain that after the flow-restricting device is removed, it may be reinstalled, without further notice, if the customer is again verified by Cal Water's personnel to be using potable water for non-essential, wasteful uses.

4. FLOW RESTRICTING DEVICE CONDITIONS: The installation of a flow-restricting devide on a customer's service line is subject to the following conditions:

   a. The device shall be capable of providing the premise with a minimum of 3 Ccf per person, per month, based upon the U.S. Census calculation of the average number of people in a household in the area.

   b. The device may only be removed by Cal Water, and only after a minimum three-day period has elapsed.

   c. Any tampering with the device may result in the discontinuation of the customer's water service and the customer being charged for any damage to Cal Water's equipment or facilities and any required service visits. (N)

(continued)

Rule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN (continued)

(Page 4) (T)

D. ENFORCEMENT (Continued) (N)

d. After the removal of the device, if Cal Water verifies that the customer is using potable water for non-essential, wasteful uses, Cal Water may install another flow-restricting device without prior notice. This device may remain in place until water supply conditions warrant its removal. If, despite the installation of the device, Cal Water verifies that the customer is using potable water for non-essential and, unauthorized wasteful uses, then Cal Water may discontinue the customer's water service, as provided in its Rule No. 11.

5. FLOW-RESTRICTING DEVICE REMOVAL CHARGES: The charge to customers for removal of a flow-restricting device installed pursuant to this Rule is $100 during normal business hours, and $150 for the device to be removed outside of normal business hours.

E. WASTEFUL USES OF WATER

Except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency, customers are prohibited, at all times, from using potable water for the following actions, as each is declared a non-essential, wasteful use of water:

1. Use of potable water through a broken or defective plumbing fixture or irrigation system when Cal Water has notified the customer in writing to repair the broken or defective plumbing fixture or irrigation system, and the customer has failed to effect such repairs within seven (7) business days of receipt of such notice;
2. The application of potable water to landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;
3. The use of a hose that dispenses potable water to wash vehicles, including cars, trucks, buses, boats, aircraft, and trailers, whether motorized or not, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.

F. MANDATORY STAGED RESTRICTIONS OF WATER USE

1. ADOPTION OF STAGED MANDATORY RESTRICTIONS: Cal Water may implement the following staged mandatory restrictions of water use, after notifying the Director of the Commission's Division of Water and Audits (DWA), by a Tier 1 advice letter in both hard-copy and emailed formats, of Cal Water's intent to implement a particular stage, if:
   a. Water supplies are projected to be insufficient to meet normal customer demand by Cal Water; or
   b. A water supply shortage or threatened shortage exists; or
   c. Water supplies are curtailed by a wholesale water supplier; or
   d. Directed to do so under a duly adopted emergency regulation by the Commission or other authorized government agencies. (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

(Page 5)

F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

2. PUBLIC NOTICE: Thirty (30) days prior to implementing a mandatory staged reduction in water use in this Rule, Cal Water shall notify its customer of the requirements of the particular stage implemented by Cal Water by bill insert, direct mailing, email, or bill message directing the customer to additional information on Cal Water's website.

3. STAGE 1 WATER SHORTAGE: A Stage 1 Water Shortage occurs when Cal Water, the Commission, a wholesale water supplier, or other authorized government agency determines that measures are needed to reduce water consumption by customers served by public water suppliers. In addition to the prohibitions outlined in **Section E**, the following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency:

   a. Outdoor Irrigation Restrictions (Stage 1)

      i. Irrigating ornamental landscapes with potable water is limited to no more than **three (3) days** per week, on a schedule established and posted by Cal Water on its website or otherwise provided to customers by bill message, bill insert, direct mail, or email, or as follows:

         1. Customers with even-numbered addresses may irrigate on Saturdays, Tuesdays, and Thursdays.
         2. Customers with odd-numbered addresses may irrigate on Sundays, Wednesdays, and Fridays.
         3. Customers without a street address may irrigate on Saturdays, Tuesdays, and Thursdays.
         4. Notwithstanding the foregoing restrictions, irrigation of special landscape areas or commercial nurseries may occur as needed, provided that the customer who wishes to irrigate a special landscape area or commercial nursery presents Cal Water with a plan to achieve water use reductions commensurate with those that would be achieved by complying with foregoing restrictions.
         5. Notwithstanding the foregoing restrictions, when a city, county, or other local public agency in one of Cal Water's service areas duly adopts restrictions on the number of days or hours of the day that customers may irrigate which are different than those adopted by Cal Water, Cal Water may enforce the city, county, or other local public agency's restrictions.

      ii. Irrigating ornamental landscape with potable water is prohibited during the hours between **8:00 a.m. and 6:00 p.m**.

      iii. The foregoing restrictions do **not** apply to:

         1. Landscape irrigation zones that exclusively use drip irrigation systems and/or micro spray irrigation system; (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

(Page 6)

F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

[Stage 1 (cont.)]

2. Irrigating ornamental landscapes with the use of a hand-held bucket or similar container, with a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored, or for the express purpose of adjusting or repairing an irrigation system.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixture(s) or irrigation system(s) must be repaired within **five (5) business days** of written notification by Cal Water, unless other arrangements are made with Cal Water.

c. **Prohibited** Uses of Water: Customers are prohibited from using potable water for the following actions:

i. The application of potable water to driveways and sidewalks;

ii. The use of potable water in a water feature, except where the water is part of a recirculating system;

iii. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall.

d. Other duly adopted restrictions on the use potable water as prescribed from time to time by the Commission or other authorized government agencies are incorporated herein by reference.

4. STAGE 2 WATER SHORTAGE: A Stage 2 Water Shortage occurs when the Stage 1 Water Shortage restrictions are deemed insufficient to achieve identified water use goals established by Cal Water, the Commission, a wholesale water supplier, or other authorized government agency. In addition to the prohibited wasteful water use practices listed in Section D, the following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency. Differences from or additions to the previous Stage are underlined.

a. Outdoor Irrigation Restrictions (Stage 2)

i. Irrigating ornamental landscapes with potable water is limited to no more than **three (3) days** per week, on a schedule established and posted by Cal Water on its website or otherwise provided to customers by bill message, bill insert, direct mail, or email, or as follows:

1. Customers with even-numbered addresses may irrigate on Saturdays, Tuesdays, and Thursdays.

2. Customers with odd-numbered addresses may irrigate on Sundays, Wednesdays, and Fridays. (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

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F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

[Stage 2 (cont.)]

3. Customers without a street address may irrigate on Saturdays, Tuesdays, and Thursdays.

4. Notwithstanding the foregoing restrictions, irrigation of special landscape areas or commercial nurseries may occur as needed, provided that the customer who wishes to irrigate a special landscape area or commercial nursery presents Cal Water with a plan to achieve water use reductions commensurate with those that would be achieved by complying with foregoing restrictions.

5. Notwithstanding the foregoing restrictions, when a city, county, or other public agency in one of Cal Water's service areas duly adopts restrictions on the number of days or hours of the day that customers may irrigate which are different than those adopted by Cal Water, Cal Water may enforce the city, county, or other local public agency's restrictions.

ii. Irrigating ornamental landscape with potable water is prohibited during the hours between **8:00 a.m. and 6:00 p.m**.

iii. The foregoing restrictions do **not** apply to:

1. Landscape irrigation zones that exclusively use drip irrigation systems and/or micro spray irrigation system;

2. Irrigating ornamental landscapes with the use of a hand-held bucket or similar container, a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored, or for the express purpose of adjusting or repairing an irrigation system.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixture(s) or irrigation system(s) must be repaired within **three (3) business days** of written notification by Cal Water, unless other arrangements are made with Cal Water.

c. **Prohibited** Uses of Water: Customers are prohibited from using potable water for the following actions:

i. The application of potable water to driveways and sidewalks;

ii. The use of potable water in a water feature, except where the water is part of a recirculating system;

iii. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall;

iv. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased; (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

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F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

[Stage 2 (cont.)]

v. Irrigation of ornamental landscape on public street medians;

vi. Irrigation outside of newly constructed homes and buildings with potable water in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

d. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guest room using clear and easily understood language.

e. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the implementation of any staged mandatory restrictions of water use as described in this Rule.

f. Other duly adopted restrictions on the use of potable water as prescribed from time to time by the Commission or other authorized government agencies are incorporated herein by reference.

5. STAGE 3 WATER SHORTAGE: A Stage 3 Water Shortage occurs when the Stage 2 Water Shortage restrictions are deemed insufficient to achieve identified water use goals established by Cal Water, the Commission, a wholesale water supplier, or other authorized government agency. In addition to the prohibited wasteful water use practices listed in Section D, the following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency. Differences from or additions to the previous Stages are underlined.

a. Outdoor Irrigation Restrictions

i. Irrigating ornamental landscapes with potable water is limited to no more than **two (2) days** per week, on a schedule established and posted by Cal Water on its website or otherwise provided to customers by bill message, bill insert, direct mail, or email, or as follows:

1. Customers with even-numbered addresses may irrigate on Saturdays and Tuesdays (previous Stages allowed Thursdays as well).
2. Customers with odd-numbered addresses may irrigate on Sundays and Wednesdays (previous Stages allowed Fridays as well).
3. Customers without a street address may irrigate on Saturdays and Tuesdays (previous Stages allowed Thursdays as well). (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

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F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

[Stage 3 (cont.)]

4. Notwithstanding the foregoing restrictions, irrigation of special landscape areas or commercial nurseries may occur as needed, provided that the customer who wishes to irrigate a special landscape area or commercial nursery presents Cal Water with a plan to achieve water use reductions commensurate with those that would be achieved by complying with foregoing restrictions.

5. Notwithstanding the foregoing restrictions, when a city, county, or other local public agency in one of Cal Water's service areas duly adopts restrictions on the number of days or hours of the day that customers may irrigate which are different than those adopted by Cal Water, Cal Water may enforce the city, county, or other local public agency's restrictions.

ii. Irrigating ornamental landscape with potable water is prohibited during the hours between **8:00 a.m. and 6:00 p.m.**

iii. The foregoing restrictions do **not** apply to:

1. Landscape irrigation zones that exclusively use drip irrigation systems and/or micro spray irrigation system;

2. Irrigating ornamental landscapes with the use of a hand-held bucket or similar container, a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored, or for the express purpose of adjusting or repairing an irrigation system.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixtures and/or irrigation system must be repaired within **two (2) business days** of written notification by Cal Water, unless other arrangements are made with Cal Water.

c. **Prohibited** Uses of Water: Customers are prohibited from using potable water for the following actions:

i. The application of potable water to driveways and sidewalks;

ii. The use of potable water in a water feature, except where the water is part of a recirculating system;

iii. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall;

iv. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;

v. Irrigation of ornamental turf on public street medians;

vi. Irrigation outside of newly constructed homes and buildings with potable water in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

vii. Use of potable water for street cleaning with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible); (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

[Stage 3 (cont.)]

viii. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.

d. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guest room using clear and easily understood language.

e. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the implementation of any staged mandatory restrictions of water use as described in this Rule.

f. Other duly adopted restrictions on the use of potable water as prescribed from time to time by the Commission or other authorized government agencies are incorporated herein by reference.

6. STAGE 4 WATER SHORTAGE: A Stage 4 Water Shortage occurs when the Stage 3 Water Shortage restrictions are deemed insufficient to achieve identified water use goals established by Cal Water, the Commission, a wholesale water supplier, or other authorized government agency. In addition to the prohibited wasteful water use practices listed in Section D, the following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency. Differences from or additions to the previous Stage are underlined.

a. Irrigating ornamental landscape with potable water is prohibited, except when a hand-held bucket or a similar container, or a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored is used to maintain vegetation, including trees and shrubs.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixtures or irrigation system must be repaired within **one (1) business day** of written notification by Cal Water, unless other arrangements are made with Cal Water.

Prohibited Uses of Water: Customers are prohibited from using potable water for the following actions:

i. The application of potable water to driveways and sidewalks;

ii. The use of potable water in a water feature, except where the water is part of a recirculating system;

iii. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall; (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

F. MANDATORY STAGED RESTRICTIONS OF WATER USE (Continued)

[Stage 4 (cont.)]

iv. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;

[Note that items previously identified as (v) and (vi) in Stage 3 have been eliminated.]

v. Use of potable water for street cleaning with trucks (the previous Stage allowed certain exceptions);

vi. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses (the previous Stage allowed certain exceptions).

c. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guest room using clear and easily understood language.

d. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the implementation of any staged mandatory restrictions of water use as described in this Rule.

f. Other duly adopted restrictions on the use of utility-supplied potable water as prescribed from time to time by the Commission or other authorized government agencies, commissions, or officials are incorporated herein by reference.

G. ADOPTION OF STAGED MANDATORY WATER USE REDUCTIONS (for Schedule 14.1)

1. ADDITION OF SCHEDULE 14.1: If, in the opinion of Cal Water, more stringent water conservation measures are required due to supply conditions or government directive, Cal Water may request the addition of a Schedule No. 14.1 – Staged Mandatory Water Use Reductions, via a Tier 2 advice letter.

   A. Cal Water may not activate Schedule No. 14.1 until it has been authorized to do so by the California Public Utilities Commission, as delegated to its Division of Water and Audits.

   B. A Schedule No. 14.1 that has been authorized by the California Public Utilities Commission shall remain dormant until triggered by specific conditions detailed in the Schedule 14.1 tariff and Cal Water has requested and received authorization for activating a stage by the California Public Utilities Commission. (N)

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

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G. ADOPTION OF STAGED MANDATORY WATER USE REDUCTIONS (for Schedule 14.1) (continued)

c. Notice of the Tier 2 advice letter and associated public participation hearing, if required, shall be provided to customers through a bill insert or a direct mailing, as set forth in Subsection 5 (Public Notice) below.

d. Cal Water shall comply with all requirements of Sections 350-358 of the California Water Code.

e. The Tier 2 advice letter requesting the addition of a Schedule No. 14.1 shall include, but not be limited to:

i. A proposed Schedule No. 14.1 tariff, which shall include but not be limited to:

1. Applicability,
2. Territory applicable to,
3. A detailed description of each stage of water budgets (the number of stages requested for a ratemaking area may vary depending on the specifics of the water shortage event),
4. A detailed description of the trigger(s) that activates each stage of water budgets,
5. A detailed description of each water use restriction for each stage of water budgets,
6. Water use violation levels, written warning levels, associated fines, if applicable, and exception procedures,
7. Conditions for installation of a flow restrictor,
8. Charges for removal of flow restrictors, and
9. Special conditions

ii. Justification for, and documentation and calculations in support of the water budgets.

2. Conditions for Activating Schedule No. 14.1: Cal Water may file a Tier 1 advice letter to request activation of a particular stage of its Schedule No. 14.1 tariff if:

a. Cal Water, the California Public Utilities Commission, wholesale water supplier, or other government agency declares an emergency requiring mandatory water budgets, mandatory water rationing, or mandatory water allocations; or

b. A government agency declares a state of emergency in response to severe drought conditions, earthquake or other catastrophic event that severely reduces Cal Water's water supply; or

c. Cal Water is unable to achieve water conservation targets set by itself; or

d. Water conservation targets set by itself or a governing agency are insufficient; or

e. Cal Water chooses to subsequently activate a different stage of its Schedule No. 14.1 tariff.

(continued)

Rule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN (continued)

(Page 13)

G. ADOPTION OF STAGED MANDATORY WATER USE REDUCTIONS (for Schedule 14.1) (continued)

a. Include, but not be limited to, a justification for activating the particular stage of mandatory water use reductions, as well as the period during which the particular stage will be in effect.

b. Be accompanied by the customer notification measures detailed in sub-section 5 (Public Notice) below.

4. De-Activating Schedule No. 14.1: When Schedule No. 14.1 is activated and Cal Water determines that water supplies are again sufficient to meet normal demands, and mandatory water use reductions are no longer necessary, Cal Water shall seek the approval of the California Public Utilities Commission, via a Tier 1 advice letter, to de-activate the particular stage of mandatory water use reductions that had been authorized.

5. Public Notice

a. When Cal Water requests the addition of a Schedule 14.1 – Staged Mandatory Water Use Reductions Tariff, via a Tier 2 advice letter, it shall provide notice of the Tier 2 advice letter and associated public hearing provided to customers through bill inserts or direct mailing, and it shall comply with all requirements of Sections 350-358 of the California Water Code (CWC), including but not limited to the following:

i. In order to be in compliance with both the General Order 96-B and CWC, notice shall be provided via both newspaper and bill insert/direct mailing.

ii. One notice shall be provided for each advice letter filed, that includes both notice of the filing of the Tier 2 advice letter as well as the details of the public hearing (date, time, place, etc.).

iii. The public meeting shall be held after the Tier 2 advice letter is filed, and before the Commission authorizes the addition of Schedule 14.1 to the tariff except in cases of emergency water shortages approved by DWA.

iv. Cal Water shall consult with Division of Water and Audits staff prior to filing advice letter, in order to determine details of public meeting.

b. In the event that Schedule No. 14.1- Staged Mandatory Water Use Reductions Tariff is triggered, and Cal Water requests activation through the filing of a Tier 1 advice letter, Cal Water shall notify its customers and provide each customer with a summary of Schedule No. 14.1 by means of bill insert or direct mailing. Notification shall take place prior to imposing any penalties associated with this plan. If activation of Schedule No. 14.1 occurs one year or more since the public hearing associated with adding Schedule 14.1 to its tariffs, then Cal Water shall conduct a public hearing pursuant to California Water Code Section 351 prior to activating a stage of its Mandatory Water Use Reduction Tariff.

c. During the period that a stage of Schedule No. 14.1 is activated, Cal Water shall provide customers with updates in at least every other bill, regarding its water supply status and the results of customers' conservation efforts. (N)

[end]

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES

A. APPLICABILITY

1. This schedule applies to all of California Water Service's regulated ratemaking areas in California, as well as Grand Oaks Water.

B. GENERAL INFORMATION

1. All expenses incurred by California Water Service to implement Rule 14.1, and Schedule 14.1, and requirements of the California State Water Resources Control Board ("Water Board") that have not been considered in a General Rate Case or other proceeding shall be accumulated by Cal Water in a separate memorandum account, authorized in Resolution W-4976, for disposition as directed or authorized from time to time by the Commission.
2. All monies collected by Cal Water through waste of water penalties established in this schedule shall be recorded in the appropriate memorandum account and used to offset the expenses described in Section 1 above.
3. Except in the case of Grand Oaks, all monies collected by Cal Water through drought surcharges, as established by the Mandatory Water Budgets found in Schedule 14.1, shall be recorded in the appropriate Water Revenue Adjustment Mechanism ("WRAM") account and used to offset under-collected revenues.
4. To the extent that any provision in this Schedule is inconsistent with Rule 14.1, the provisions of this Schedule apply. (D)
5. On April 1, 2015, the Governor of the State of California issued Executive Order B-29-15 due to severe drought conditions. The Executive Order, among other requirements, directs the State Water Resources Control Board ("Water Board") to impose restrictions on urban water suppliers like Cal Water to achieve a statewide 25% reduction in potable urban usage, as compared with the amount used in 2013, through February 2016. (L) (D)

   Urban water suppliers must develop rate structures and other pricing mechanisms, such as surcharges and penalties, to achieve 25% water conservation. (L)
6. On May 5, 2015, the Water Board issued an Emergency Regulation by Resolution No. 2015-0032 due to continuing drought conditions with specific water use reductions, by service area, and prohibitions on how end-use customers can use potable water. On May 7, 2015, the California Public Utilities Commission ("Commission") issued Resolution W-5041 ordering compliance with the mandates of the Governor and the Water Board. (L)
7. On November 13, 2015, the Governor of the State of California issued Executive Order B-36-15 that directed the Water Board to, if drought conditions persist through January 2016, extend until October 31, 2016 restrictions to achieve a statewide reduction in potable usage. (N)
8. On February 2, 2016, the Water Board adopted an extended and revised Emergency Regulation due to continuing drought conditions. On February 11, 2016, the Commission issued Resolution W-5082 ordering compliance with the mandates of the Governor and the Water Board. (N)

C. DEFINITIONS

For the purposes of this Schedule, the following terms have the meanings set forth in this section. (These are the same as in Rule 14.1, unless otherwise specified.)

1. "Commercial nursery" means the use of land, buildings or structures for the growing and/or storing of flowers, fruit trees, ornamental trees, vegetable plants, shrubs, trees and similar vegetation for the purpose of transplanting, for use as stock or grafting, and includes the retail sale or wholesale distribution of such items directly from the premises/lot.

(continued)

Schedule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES

C. DEFINITIONS (Continued)

2. "Drip irrigation system" means a non-spray, low-pressure, and low volume irrigation system utilizing emission devices with a precipitation or flow rate measured in gallons per hour (GPH), designed to slowly apply small volumes of water at or near the root zone of plants or other landscaping.
3. "Flow rate" means the rate at which water flows through pipes, valves, and emission devices, measured in gallons per minute (GPM), gallons per hour (GPH), inches per hour (IPH), hundred cubic feet (Ccf), or cubic feet per second (CFS).
4. "Flow-restricting device" means valves, orifices, or other devices that reduce the flow of potable water through a service line, which are capable of passing a minimum of 3 Ccf per person, per month, based upon the U.S. Census calculation of the average number of people in a household in the area.
5. "High-efficiency sprinkler systems" means an irrigation system with emission devices, such as sprinkler heads or nozzles, with a precipitation or flow rate no greater than one IPH.
6. "Irrigation" means the application of potable water by artificial means to landscape.
7. "Irrigation system" means the components of a system meant to apply water to an area for the purpose of irrigation, including, but not limited to, piping, fittings, sprinkler heads or nozzles, drip tubing, valves, and control wiring.
8. "Landscape" means all of the outdoor planting areas, turf areas, and water features at a particular location.
9. "Measureable rainfall" means any amount of precipitation of more than one-tenth of an inch (0.1").
10. "Micro spray irrigation system" means a low-pressure, low-volume irrigation system utilizing emission devices that spray, mist, sprinkle, or drip with a precipitation or flow rate measured in GPH, designed to slowly apply small volumes of water to a specific area.
11. "Ornamental landscape" means shrubs, bushes, flowers, ground cover, turf, lawns, and grass planted for the purpose of improving the aesthetic appearance of property, but does not include crops or other agricultural products or special landscape areas.
12. "Ornamental turf" means a ground cover surface of grass that can be mowed and is planted for the purpose of improving the aesthetic appearance of the property, but does not include crops or other agricultural products or special landscape areas.
13. "Plumbing fixture" means a receptacle or device that is connected to a water supply system, including, but not limited to, pipes, toilets, urinals, showerheads, faucets, washing machines, water heaters, tubs, and dishwashers.
14. "Potable water" means water supplied by Cal Water which conforms to the federal and state standards for human consumption.
15. "Properly programmed" means a smart irrigation controller that has been programmed according to the manufacturer's instructions and site-specific conditions.
16. "Real-time water measurement device" means a device or system that provides regularly updated electronic information regarding the customer's water use.
17. "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape onto other areas.
18. "Smart irrigation controller" means an automatic device used to remotely control valves that operate an irrigation system that has been tested by an American National Standards Institute accredited third-party certifying body or (N)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

C. DEFINITIONS (Continued)

laboratory in accordance with the Environmental Protection Agency's WaterSense program (or an analogous successor program), and certified by such body or laboratory as meeting the performance and efficiency requirements of such program, or the more stringent performance and efficiency requirements of another similar program.

19. "Special landscape area" means an area of the landscape dedicated solely to edible plants and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
20. "Turf" means a ground cover surface of grass that can be mowed.
21. "Water feature" means a design element where open, artificially supplied water performs an aesthetic or recreation feature, including, but not limited to, ponds, lakes, waterfalls, fountains, and streams.
22. "Water use evaluation" means an evaluation of the efficiency of indoor water-using devices, including, but not limited to, measurement of flow rates for all existing showerheads, faucets, and toilets, inspection for leaks, and providing written recommendations to improve the efficiency of the indoor water-using fixtures and devices and/or an evaluation of the performance of an irrigation system, including, but not limited to, inspection for leaks, reporting of overspray or runoff, and providing written recommendations to improve the performance of the irrigation system.

D. WASTE OF WATER PENALTIES

Each Stage of this Schedule establishes certain restrictions on the use of potable water. Violating the restrictions set forth in a particular Stage while it is in effect is declared a non-essential, wasteful use of potable water. Cal Water is authorized to take the following actions when its personnel verify a customer is using potable water for non-essential, wasteful uses. No person shall have any right or claim in law or in equity, against Cal Water because of, or as a result of, any matter or thing done or threatened to be done pursuant to the restrictions on using potable water for non-essential, wasteful uses.

Note: When a Stage in this Schedule has been activated, Section D in this Schedule supersedes Section D (Enforcement) in Rule 14.1.

1. **FIRST VIOLATION:** Cal Water shall provide the customer with a written notice of violation. In addition, Cal Water is authorized to take the following actions:
   a. If the customer currently receives service through a metered connection, install a real-time water measurement device on the customer's service line and provide the customer with access to information from the device. The cost of the device, including installation and ongoing operating costs, may be billed to the customer, and nonpayment may result in discontinuance of service. (C)
   b. If the customer does not currently receive service through a metered connection, install a water meter on the customer's service line, charge the customer for water use pursuant to Cal Water's metered service tariffs and rules, and install a real-time water measurement device on the customer's service line and provide the customer with access to information from the device. The cost of the device, including installation and ongoing operating costs, may be billed to the customer, and nonpayment may result in discontinuance of service. (C)
2. **SECOND VIOLATION:** If Cal Water verifies that the customer has used potable water for non-essential, wasteful uses after having been notified of the first violation, Cal Water shall provide the customer with a second written notice of violation. In addition to the actions prescribed under the first violation above, Cal Water is authorized to take the following actions:
   a. Apply the following waste of water penalties, which are in addition to any other charges authorized by this Schedule or other Cal Water tariffs.
      i. If Stage 1 is in effect, $25 (Stage 1 is detailed below in Section E).
      ii. If Stage 2 is in effect, $50 (Stage 2 is detailed below in Section F).

(continued)

Schedule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

D. WASTE OF WATER PENALTIES (Continued)

iii. If Stage 3 is in effect, $100 (Stage 3 is detailed below in Section G).
iv. If Stage 4 is in effect, $200 (Stage 4 is detailed below in Section H).

b. At its sole discretion, waive the waste of water penalty if the customer participates in a water use evaluation provided by Cal Water and/or provides documentation to Cal Water proving that a drip irrigation system, micro spray irrigation system, high-efficiency sprinkler system, or properly programmed smart irrigation controller has been installed, after a notice of violation was delivered, and is in use at the customer's service address.

3. THIRD VIOLATION: If Cal Water verifies that the customer has used potable water for non-essential, wasteful uses after having been notified of the second violation, Cal Water shall provide the customer with a third written notice of violation. In addition to the actions prescribed under the first and second violation above, Cal Water is authorized to take the following actions:

a. Apply the following waste of water penalties, which are in addition to any other charges authorized by this Schedule or other Cal Water tariffs.
i. If Stage 1 is in effect, $50 (Stage 1 is detailed below in Section E).
ii. If Stage 2 is in effect, $100 (Stage 2 is detailed below in Section F).
iii. If Stage 3 is in effect, $200 (Stage 3 is detailed below in Section G).
iv. If Stage 4 is in effect, $400 (Stage 4 is detailed below in Section H).

b. At its sole discretion, waive the waste of water surcharge if the customer participates in a water use evaluation provided by Cal Water and/or provides documentation to Cal Water proving that a drip irrigation system, micro spray irrigation system, high-efficiency sprinkler system, or properly programmed smart irrigation controller has been installed, after notice of violations have been delivered, and is in use at the customer's service address.

4. FOURTH VIOLATION: If Cal Water verifies that the customer has used potable water for non-essential, wasteful uses after having been notified of the third violation, Cal Water shall provide the customer with a fourth written notice of violation. In addition to actions set forth in previous violations prescribed above, Cal Water is authorized to install a flow-restricting device on the customer's service line. Cal Water shall not be held liable for any injuries, damages, and/or consequences arising from the installation of a flow restricting device.

5. EGREGIOUS VIOLATIONS: Notwithstanding the foregoing framework for penalties, customers who Cal Water has verified are egregiously using potable water for non-essential, wasteful uses are subject to having a flow-restricting device installed on their service line. After providing the customer with one notice of egregious violation, either by direct mail or door hanger, which documents the egregious use of potable water for non-essential, wasteful uses and explains that failure to correct the violation may result in the installation of a flow-restricting device on the customer's service line, Cal Water is authorized to install a flow-restricting device on the customer's service line. Cal Water shall not be held liable for any injuries, damages, and/or consequences arising from the installation of a flow restricting device.

6. NOTICES OF VIOLATION:

a. Unless otherwise specified, written notices of violation provided to customers pursuant to this Schedule shall document the verified violation and alert the customer to the fact that future violations of the restricted uses of potable water may result in a real-time water measurement device being installed on the customer's service line at the customers expense, waste of water surcharges being applied to the customer's bill, the installation of a flow-restricting device on the customer's service line, or the discontinuation of the customer's service. (N)

(continued)

Schedule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

D. WASTE OF WATER PENALTIES (Continued)

b. If Cal Water elects to install a flow-restricting device on a customer's service line, the written notice shall document the steps the customer must take in order for the flow-restricting device to be removed, and shall explain that after the flow-restricting device is removed, it may be reinstalled, without further notice, if the customer is again verified by Cal Water to be using potable water for non-essential, wasteful uses.

7. FLOW RESTRICTING DEVICE CONDITIONS: The installation of a flow-restricting device on a customer's service line is subject to the following conditions:

a. The device shall be capable of providing the premise with a minimum of 3 Ccf per person, per month, based upon the U.S. Census calculation of the average number of people in a household in the area.

b. The device may only be removed by Cal Water, and only after a minimum three-day period has elapsed.

c. Any tampering with the device may result in the discontinuation of the customer's water service and the customer being charged for any damage to Cal Water's equipment or facilities and any required service visits.

d. After the removal of the device, if Cal Water's personnel verify that the customer is using potable water for non-essential, wasteful uses, Cal Water may install another flow-restricting device without prior notice. This device shall remain in place until water supply conditions warrant its removal. If, despite the installation of the device, Cal Water's personnel verifies that the customer is using potable water for non-essential, wasteful uses, then Cal Water may discontinue the customer's water service, as provided in its Rule No. 11.

8. FLOW-RESTRICTING DEVICE REMOVAL CHARGES: The charge to customers for removal of a flow-restricting device installed pursuant to this Schedule is $100 during normal business hours, and $150 for the device to be removed outside of normal business hours.

E. STAGE ONE WATER USE RESTRICTIONS

1. WASTEFUL USES OF WATER (STAGE 1)

The following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need, or to comply with a term or condition in a permit issued by a state or federal agency:

a. Outdoor Irrigation Restrictions (Stage 1)

i. Irrigating ornamental landscapes with potable water is limited to no more than **three (3) days per week,** on a schedule established and posted by Cal Water on its website or otherwise provided to customers by bill message, bill insert, direct mail, or email, or as follows:

1. Customers with even-numbered addresses may irrigate on Saturdays, Tuesdays, and Thursdays.
2. Customers with odd-numbered addresses may irrigate on Sundays, Wednesdays, and Fridays.
3. Customers without a street address may irrigate on Saturdays, Tuesdays, and Thursdays. (N)

(continued)

Schedule No. 14.1 (N)

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

E. STAGE ONE WATER USE RESTRICTIONS (Continued)

4. Notwithstanding the foregoing restrictions, irrigation of special landscape areas or commercial nurseries may occur as needed, provided that the customer who wishes to irrigate a special landscape area or commercial nursery presents Cal Water with a plan to achieve water use reductions commensurate with those that would be achieved by complying with foregoing restrictions.
5. Notwithstanding the foregoing restrictions, when a city, county, or other local public agency in one of Cal Water's service areas duly adopts restrictions on the number of days or hours of the day that customers may irrigate that are different than those adopted by Cal Water, Cal Water may enforce the city, county, or other local public agency's restrictions.

ii. Irrigating ornamental landscape with potable water is prohibited during the hours between **8:00 a.m. and 6:00 p.m.**

iii. The foregoing restrictions do **not** apply to:
1. Landscape irrigation zones that exclusively use drip irrigation systems and/or micro spray irrigation system;
2. Irrigating ornamental landscapes with the use of a hand-held bucket or similar container, with a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored, or for the express purpose of adjusting or repairing an irrigation system.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixtures and/or irrigation system must be repaired within **five (5) business days** of written notification by Cal Water, unless other arrangements are made with Cal Water.

c. Prohibited Uses of Water: Customers are prohibited from using potable water for the following actions:
i. The application of potable water to landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;
ii. The use of a hose that dispenses potable water to wash vehicles, including cars, trucks, buses, boats, aircraft, and trailers, whether motorized or not, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.
iii. The application of potable water to driveways and sidewalks;
iv. The use of potable water in a water feature, except where the water is part of a recirculating system;
v. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall (see Definitions);
vi. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;
vii. Irrigation of ornamental turf on public street medians with potable water;
viii. Irrigation outside of newly constructed homes and buildings with potable water in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

d. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guest room using clear and easily understood language. (N)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

E. STAGE ONE WATER USE RESTRICTIONS (Continued)

[Stage 1 (cont.)]

e. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the implementation of any staged mandatory restrictions of water use as described in this Schedule.

f. Other duly adopted restrictions on the use of potable water as prescribed from time to time by the Commission or other authorized government agencies are incorporated herein by reference.

F. STAGE TWO WATER USE RESTRICTIONS

1. MANDATORY WATER BUDGETS AND BANKING (STAGE 2)

As described in greater detail below, the Water Board has mandated reductions in potable urban usage, as compared with the amount used in 2013, in each of Cal Water's service areas. Water suppliers must develop rate structures and other pricing mechanisms, such as surcharges and penalties, to achieve these mandated reductions (T)

a. **Mandatory Reduction Percentages**: The Water Board has established increasing levels of required water reduction for each service areas based upon the residential per capita per day use (R-GPCD) in that service area for the three summer months of July through September 2014. The Water Board's approach considers the relative per capita water usage in each service area and requires that those areas with high per-capita use achieve proportionally greater reductions than those with low use. The Water Board has also allowed for adjustments to these required water reductions based on specific criteria.

Each month, the Water Board determines whether a service area has met its mandatory reduction percentage by calculating cumulative savings in the service area since June 2015, and comparing those with the amount of water used during the same months in 2013. (T)

b. **Customer Water Budgets:** Each customer with metered potable water service (residential and non-residential customers) will receive an individualized "Water Budget" for each billing period. (T)

i. The Water Budget will be based on the units of water (CCF) that customer used in the same billing period in 2013, minus the Mandatory Reduction Percentage established by the Water Board for that customer's service area. (T) A customer's Water Budget will vary according to their monthly water usage in 2013. Cal Water shall notify its customers of any changes to the Mandatory Reduction Percentage by the Water Board through bill inserts or direct mailings prior to applying the changed percentage in the requirements in this Schedule, consistent with the "Update" process described in Section F.1.d.(iv) of this Schedule. Cal Water shall also include the current Mandatory Reduction Percentage in effect for each service area on its website. (C) (C)

ii. If a customer was not in his or her current location in 2013, the average monthly consumption will be used as a starting budget. If customers have a unique situation and the average budget is not appropriate, they can file an appeal to have their Water Budget increased. Cal Water may also modify the starting budget to reflect suitable use. (T)

iii. The Water Budget for the following billing period will appear on each customer's water bill. Customers will also be able to find their Water Budgets, and their individual water use history dating back to 2013, by going to usage.calwater.com (do not include "www"), and entering their account number, street (or house) number, and ZIP code. (T) (T)

(D)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

F. STAGE TWO WATER USE RESTRICTIONS (continued) (T)

1. MANDATORY WATER BUDGETS AND BANKING (STAGE 2) (continued) (T)

c. **Minimum Water Budgets**: A minimum monthly amount of water that protects the health and safety of customers will be established for each service area as a Minimum Water Budget for single-family residential customers.

i. No single-family residential customer will have a water budget that is below the threshold of the monthly Minimum Water Budget, even if applying the Mandatory Reduction Percentage to that customer's 2013 usage would result in a lower amount.

ii. The Minimum Water Budget for each service area is identified in **Appendix A**. (For areas with bi-monthly billing and bi-monthly water budgets, the Minimum Water Budget in Appendix A should be doubled for the billing period.)

d. **Drought Surcharges**: If a customer uses more units of potable water (CCF) than their Water Budget in a billing period, that customer's water bill may reflect an additional "Drought Surcharge" for each unit of water over the Water Budget, depending on the amount of excess usage (according to usage tiers described below). (T) (C)

i. **Tier A and Tier B Excess Water Usage:** Excess water usage above a customer's Water Budget may fall into one or both of two tiers – Tier A and Tier B. The amount of usage in Tiers A and B varies by service area, and depends upon whether an area has met its Mandatory Reduction Percentage on a cumulative basis.

For the purposes of Drought Surcharges, each service area will fall into one of two categories – those in compliance with the Mandatory Reduction Percentage, and those not in compliance. There are two sample tables in the last section of this Schedule (**Section I**). The first sample table identifies the Tier A and B usage amounts for those service areas that are in compliance with their Mandatory Reduction Percentage, as of the date specified in **Appendix A**. The second sample table identifies the Tier A and B usage amounts for those service areas that are not in compliance with their Mandatory Reduction Percentage, as of the date specified in **Appendix A**. (C)

ii. **Current Surcharges and Tiers: Appendix A** to this schedule provides the Drought Surcharge rate per unit of water and the excess water usage in Tiers A and B that are currently in effect for each service area. (T) (C)

At this time, Drought Surcharges only apply to excess water usage that falls within "Tier B." Excess water usage in Tier A constitutes a "courtesy" tier to which Drought Surcharges are not applied. As stated below under Water Banking, however, all excess water usage will be applied against a customer's "banked" water amounts, regardless of whether the usage falls within Tier A or Tier B. (C)

Customers will continue to pay the normal tariffed rates for potable water, in addition to any applicable Drought Surcharges. Cal Water retains the right to increase the surcharges if there are changes to the rates in the future. (T)

iii. **Current Compliance Status of Service Area**: **Appendix B** to this schedule provides the Mandatory Reduction Percentage adopted by the Water Board for each area, and the actual cumulative savings for each area, **as of the date specified in Appendix A.** ***Drought Surcharges will be applied based on Tier A and B excess water usage beginning with the first day of each billing period that starts on or after March 31, 2016.*** (C)

iv. **Updates**: An increase in the excess usage designated in Tier A, an increase in Customer Water Budgets, or a decrease in Drought Surcharge rates, are "less restrictive" tariff changes that may be implemented via a Tier 1 advice letter.

A decrease in the excess usage designated in Tier A, a decrease in Customer Water Budgets, or an increase in Drought Surcharge rates are "more restrictive" tariff changes that shall be implemented by filing a Tier 2 advice letter. Cal Water shall notify its customers, and provide each customer with a summary of the changes by means of a bill insert or direct mailing, prior to the effective date of a more restrictive tariff change.

A service area's compliance status, which determines the amount of excess usage designated for Tiers A and B, shall be updated no more than once every 90 days, or to implement different requirements of the Water Board as needed. (C)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

 (T)

F. STAGE TWO WATER USE RESTRICTIONS (continued)

1. MANDATORY WATER BUDGETS AND BANKING (STAGE 2) (continued) (T)

e. **Water Banking**: Customers will be able to "bank" unused units of water from their water budget for use in future billing periods. (L)

i. Should a customer exceed his or her monthly budget, any banked units of water will be applied to the overage before drought surcharges are imposed.

ii. Banked water units can only offset future usage that exceeds a water budget.

f. **Water Budget Appeals:** If specified criteria are met, a customer can file an appeal to have his or her water budget increased.

i. The reasons appeals may be considered include: water use necessary for health and safety; business or economic needs, including process-water requirements; significant long-term savings achieved since 2011; average monthly water use in 2014 that is at least 50% lower than district average; and large animal care (e.g. horse).

ii. All appeals must be submitted online at **www.calwater.com/appeal** or via a written application form (available at **www.calwater.com/appeal** or from our local Customer Center).

iii. Surcharges incurred during the appeal review period may be waived if the review takes an extended period of time.

2. WASTEFUL USES OF WATER (STAGE 2)

Cal Water may continue to impose the restrictions on the wasteful use of water as outlined in Stage One, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency.

G. STAGE THREE WATER USE RESTRICTIONS

1. MANDATORY WATER BUDGETS AND BANKING (STAGE 3)

Water budgets will be based on a customer's consumption during a historical base period and will include a percentage reduction designed to meet necessary water-use reductions. Cal Water may include provisions such as minimum water budgets to protect the health and safety of customers, and water banking allowing customers additional flexibility with regard to their required reductions.

In addition to the normal rate paid for the unit of water, a drought surcharge will be charged to a customer for each unit of water used over the established water budget for the billing period. Cal Water may implement surcharges up to three (3) times those charged in Stage 2. Cal Water will establish an appeals process for customers that will allow for requests for increased water budgets. (L)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

(T)

G. STAGE THREE WATER USE RESTRICTIONS (Continued)

[Stage 3 (cont.)]

2. WASTEFUL USES OF WATER (STAGE 3)

The following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency. Differences from or additions to previous Stages are underlined. (The following restrictions are the same as those provided in Stage 3 of Rule 14.1.)

a. Outdoor Irrigation Restrictions (Stage 3)

i. Irrigating ornamental landscapes with potable water is limited to no more than **two (2) days per week,** on a schedule established and posted by Cal Water on its website or otherwise provided to customers by bill message, bill insert, direct mail, or email, or as follows:

1. Customers with even-numbered addresses may irrigate on Saturdays and Tuesdays (previous Stages allowed Thursdays as well).
2. Customers with odd-numbered addresses may irrigate on Sundays and Wednesdays (previous Stages allowed Fridays as well).
3. Customers without a street address may irrigate on Saturdays and Tuesdays (previous Stages allowed Thursdays as well).
4. Notwithstanding the foregoing restrictions, irrigation of special landscape areas or commercial nurseries may occur as needed, provided that the customer who wishes to irrigate a special landscape area or commercial nursery presents Cal Water with a plan to achieve water use reductions commensurate with those that would be achieved by complying with foregoing restrictions.
5. Notwithstanding the foregoing restrictions, when a city, county, or other local public agency in one of Cal Water's service areas duly adopts restrictions on the number of days or hours of the day that customers may irrigate which are different than those adopted by Cal Water, Cal Water may enforce the city, county, or other local public agency's restrictions.

ii. Irrigating ornamental landscape with potable water is prohibited during the hours between **8:00 a.m. and 6:00 p.m.**

iii. The foregoing restrictions do **not** apply to:

1. Landscape irrigation zones that exclusively use drip irrigation systems and/or micro spray irrigation system;
2. Irrigating ornamental landscapes with the use of a hand-held bucket or similar container, a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored, or for the express purpose of adjusting or repairing an irrigation system.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixtures and/or irrigation system must be repaired within **two (2) business days** of written notification by Cal Water, unless other arrangements are made with Cal Water.

c. **Prohibited** Uses of Water: Customers are prohibited from using potable water for the following actions:

i. The application of potable water to landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures (note: this provision appears under Section E in Rule 14.1);

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

(T)

G. STAGE THREE WATER USE RESTRICTIONS (Continued)

[Stage 3 (cont.)]

ii. The use of a hose that dispenses potable water to wash vehicles, including cars, trucks, buses, boats, aircraft, and trailers, whether motorized or not, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use (note: this provision appears under Section E in Rule 14.1).

iii. The application of potable water to driveways and sidewalks;

iv. The use of potable water in a water feature, except where the water is part of a recirculating system;

v. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall;

vi. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;

vii. Irrigation of ornamental turf on public street medians with potable water;

viii. Irrigation outside of newly constructed homes and buildings with potable water in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

ix. Use of potable water for street cleaning with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible);

x. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.

d. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guest room using clear and easily understood language.

e. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the implementation of any staged mandatory restrictions of water use as described in this Schedule.

f. Other duly adopted restrictions on the use of potable water as prescribed from time to time by the Commission or other authorized government agencies are incorporated herein by reference.

H. STAGE FOUR WATER USE RESTRICTIONS

1. MANDATORY WATER BUDGETS AND BANKING (STAGE 4)

Water budgets will be based on a customer's consumption during a historical base period and will include a percentage reduction designed to meet necessary water-use reductions. Cal Water may include provisions such as minimum water budgets to protect the health and safety of customers, and water banking allowing customers additional flexibility with regard to their required reductions.

In addition to the normal rate paid for the unit of water, a drought surcharge will be charged to a customer for each unit of water used over the established water budget for the billing period. For Stage 4, Cal Water may implement surcharges up to three (3) times those charged in Stage 2. Cal Water may require customer consumption reductions of up to 50%.

Cal Water will establish an appeals process for customers that will allow for requests for increased water budgets.

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

(T)

H. STAGE FOUR WATER USE RESTRICTIONS (Continued)

[Stage 4 (cont.)]

2. WASTEFUL USES OF WATER (STAGE 4)

The following restrictions may be imposed by Cal Water, except where necessary to address an immediate health or safety need or to comply with a term or condition in a permit issued by a state or federal agency. Differences from or additions to previous Stages are underlined. (The following restrictions are the same as those provided in Stage 4 of Rule 14.1.)

a. Irrigating ornamental landscape with potable water is prohibited, except when a hand-held bucket or a similar container, or a continuously monitored hose which is fitted with an automatic shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use or monitored is used to maintain vegetation, including trees and shrubs.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the customer's plumbing fixtures or irrigation system must be repaired within **one (1) business day** of written notification by Cal Water, unless other arrangements are made with Cal Water.

c. Prohibited Uses of Water: Customers are prohibited from using potable water for the following actions:

i. The application of potable water to landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

ii. The use of a hose that dispenses potable water to wash vehicles, including cars, trucks, buses, boats, aircraft, and trailers, whether motorized or not, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.

iii. The application of potable water to driveways and sidewalks;

iv. The use of potable water in a water feature, except where the water is part of a recirculating system;

v. The application of potable water to outdoor landscapes during and within forty-eight (48) hours after measurable rainfall;

vi. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;

[Note that items previously identified as (ix) and (x) in Stage 3 have been eliminated.]

vii. Use of potable water for street cleaning with trucks (previous Stage allowed certain exceptions);

viii. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses (previous Stages allowed certain exceptions).

d. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guest room using clear and easily understood language.

e. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to the implementation of any staged mandatory restrictions of water use as described in this Schedule.

f. Other duly adopted restrictions on the use of potable water as prescribed from time to time by the Commission or other authorized government agencies are incorporated herein by reference.

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

(T)

I. SAMPLE TABLES WITH TIER A AND TIER B EXCESS USAGE AMOUNTS

(N)

1. FOR DISTRICTS IN COMPLIANCE WITH MANDATORY REDUCTIONS

For the purposes of applying Drought Surcharges, the sample table below identifies the number of units over a customer's Water Budget (the excess usage) that falls within Tiers A and B in a district whose cumulative savings meet the Water Board's Mandatory Reduction Percentage as of the date identified in **Appendix A**.

For Districts in Compliance with Mandatory Water Reduction Targets

District	Service Area	Tier A - No Surcharges	Tier B - Drought Surcharges Applied			Minimum Water Budget	Rate Support Fund Area
		Units Over Water Budget	Units Over Water Budget	Surcharge per unit (Non-LIRA Customers)	Surcharge per unit (LIRA Customers)	(Ccf per month)	(RSF)
Antelope Valley	Fremont Valley & Lake Hughes	1-6	7+	$4.5200	$2.2600	5	RSF Area
	Lancaster	1-5	6+	$7.1180	$3.5590	5	
	Leona Valley	1-4	5+	$4.5200	$2.2600	5	RSF Area
Bakersfield		1-6	7+	$4.1868	$2.0934	7	
Bayshore	Mid-Peninsula	1-3	4+	$10.0000	$5.0000	6	
	South San Francisco	1-3	4+	$5.6492	$2.8246	6	
Bear Gulch		1-5	6+	$10.0000	$5.0000	6	
Chico		1-6	7+	$3.1314	$1.5657	6	
Dixon		1-3	4+	$7.9402	$3.9701	7	
Dominguez		1-3	4+	$6.9934	$3.4967	7	
East Los Angeles		1-4	5+	$3.7605	$1.8803	9	
Grand Oaks		1-6	7+	$2.1236	$1.0618	5	
Hermosa Redondo		1-3	4+	$9.1586	$4.5793	5	
Kern River Valley		1-3	4+	$4.5200	$2.2600	4	RSF Area
King City		1-4	5+	$6.7536	$3.3768	9	
Livermore		1-4	5+	$7.6194	$3.8097	6	
Los Altos		1-5	6+	$8.1608	$4.0804	6	
Marysville		1-4	5+	$5.1470	$2.5735	6	
Oroville		1-5	6+	$6.1840	$3.0920	6	
Palos Verdes		1-6	7+	$9.5358	$4.7679	6	
Redwood Valley		1-4	5+	$4.5200	$2.2600	4	RSF Area
Salinas		1-3	4+	$5.7776	$2.8888	7	
Selma		1-5	6+	$3.0122	$1.5061	8	
Stockton		1-4	5+	$5.5506	$2.7753	7	
Visalia		1-5	6+	$2.9796	$1.4898	7	
Westlake		1-6	7+	$9.2378	$4.6189	6	
Willows		1-5	6+	$4.1356	$2.0678	6	

(N)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

(T)

I. SAMPLE TABLES WITH TIER A AND TIER B EXCESS USAGE AMOUNTS

(N)

2. FOR DISTRICTS NOT IN COMPLIANCE WITH MANDATORY REDUCTIONS

For the purposes of applying Drought Surcharges, the sample table below identifies the number of units over a customer's Water Budget (the excess usage) that falls within Tiers A and B in a district whose cumulative savings do NOT meet the Water Board's Mandatory Reduction Percentage as of the date identified in **Appendix A**.

For Districts not in Compliance with Mandatory Water Reduction Targets

District	Service Area	Tier A - No Surcharges	Tier B - Drought Surcharges Applied			Minimum Water Budget	Rate Support Fund Area
		Units Over Water Budget	Units Over Water Budget	Surcharge per unit (Non-LIRA Customers)	Surcharge per unit (LIRA Customers)	(CCF per month)	(RSF)
Antelope Valley	Fremont Valley & Lake Hughes	1	2+	$4.5200	$2.2600	5	RSF Area
	Lancaster	1	2+	$7.1180	$3.5590	5	
	Leona Valley	1	2+	$4.5200	$2.2600	5	RSF Area
Bakersfield		1	2+	$4.1868	$2.0934	7	
Bayshore	Mid-Peninsula	1	2+	$10.0000	$5.0000	6	
	South San Francisco	1	2+	$5.6492	$2.8246	6	
Bear Gulch		1	2+	$10.0000	$5.0000	6	
Chico		1	2+	$3.1314	$1.5657	6	
Dixon		1	2+	$7.9402	$3.9701	7	
Dominguez		1	2+	$6.9934	$3.4967	7	
East Los Angeles		1	2+	$3.7605	$1.8803	9	
Grand Oaks		1	2+	$2.1236	$1.0618	5	
Hermosa Redondo		1	2+	$9.1586	$4.5793	5	
Kern River Valley		1	2+	$4.5200	$2.2600	4	RSF Area
King City		1	2+	$6.7536	$3.3768	9	
Livermore		1	2+	$7.6194	$3.8097	6	
Los Altos		1	2+	$8.1608	$4.0804	6	
Marysville		1	2+	$5.1470	$2.5735	6	
Oroville		1	2+	$6.1840	$3.0920	6	
Palos Verdes		1	2+	$9.5358	$4.7679	6	
Redwood Valley		1	2+	$4.5200	$2.2600	4	RSF Area
Salinas		1	2+	$5.7776	$2.8888	7	
Selma		1	2+	$3.0122	$1.5061	8	
Stockton		1	2+	$5.5506	$2.7753	7	
Visalia		1	2+	$2.9796	$1.4898	7	
Westlake		1	2+	$9.2378	$4.6189	6	
Willows		1	2+	$4.1356	$2.0678	6	

(N)

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

APPENDIX A to Schedule 14.1 - *NOT IN EFFECT* (C)

Drought Surcharge Tiers (applies to all metered customers of potable water) (C)

District	Service Area	In Compliance with Mandatory Reduction? As of 2/1/16	Tier A - No Surcharges	Tier B - Drought Surcharges Applied			Minimum Water Budget	Rate Support Fund Area
			Units Over Water Budget	Units Over Water Budget	Surcharge per unit (Non-LIRA Customers)	Surcharge per unit (LIRA Customers)	(CCF per month)	(RSF)
Antelope Valley	Fremont Val. /Lake Hughes		1-6	7+	$4.5200	$2.2600	5	RSF Area
	Lancaster		1-5	6+	$7.1180	$3.5590	5	
	Leona Valley		1-4	5+	$4.5200	$2.2600	5	RSF Area
Bakersfield			1-6	7+	$4.1868	$2.0934	7	
Bayshore	Mid-Peninsula		1-3	4+	$10.0000	$5.0000	6	
	South San Francisco		1-3	4+	$5.6492	$2.8246	6	
Bear Gulch			1-5	6+	$10.0000	$5.0000	6	
Chico			1-6	7+	$3.1314	$1.5657	6	
Dixon			1-3	4+	$7.9402	$3.9701	7	
Dominguez			1-3	4+	$6.9934	$3.4967	7	
East Los Angeles			1-4	5+	$3.7605	$1.8803	9	
Grand Oaks			1-6	7+	$2.1236	$1.0618	5	
Hermosa Redondo		**No**	1	2+	$9.1586	$4.5793	5	
Kern River Valley		**No**	1	2+	$4.5200	$2.2600	4	RSF Area
King City			1-4	5+	$6.7536	$3.3768	9	
Livermore			1-4	5+	$7.6194	$3.8097	6	
Los Altos			1-5	6+	$8.1608	$4.0804	6	
Marysville			1-4	5+	$5.1470	$2.5735	6	
Oroville			1-5	6+	$6.1840	$3.0920	6	
Palos Verdes		**No**	1	2+	$9.5358	$4.7679	6	
Redwood Valley (all)			1-4	5+	$4.5200	$2.2600	4	RSF Area
Salinas			1-3	4+	$5.7776	$2.8888	7	
Selma			1-5	6+	$3.0122	$1.5061	8	
Stockton			1-4	5+	$5.5506	$2.7753	7	
Visalia		**No**	1	2+	$2.9796	$1.4898	7	
Westlake		**No**	1	2+	$9.2378	$4.6189	6	
Willows			1-5	6+	$4.1356	$2.0678	6	

(a) The Drought Surcharge is equal to two (2) times the highest residential tier rate with a $10.00 maximum EXCEPT:
The Drought Surcharge in Rate Support Fund (RSF) areas is equal to $4.52.
The Drought Surcharge for districts with a 10% or less water reduction requirement is equal to the highest residential tier rate.

(b) The Drought Surcharge for LIRA customers is 50% of the Drought Surcharge for Non-LIRA customers.

(c) The Minimum Water Budget is set at 55 gpcd (gallons per capita per day) multiplied by the number of people per household for the area according to the U.S. Census.

(d) A district is determined to be in compliance if it has met or is within one percent of its Mandatory Reduction requirement.

(continued)

Schedule No. 14.1

WATER SHORTAGE CONTINGENCY PLAN
WITH STAGED MANDATORY REDUCTIONS AND DROUGHT SURCHARGES (continued)

 (T)

APPENDIX B to Schedule 14.1 (T)

CUMULATIVE WATER SAVED COMPARED TO MANDATORY REDUCTIONS (C)

Urban Water Supplier	Cumulative Percentage Saved	Water Board's Target Percentage	In Compliance?
	Jun. 2015 to Jan. 2016 (as compared to 2013) *	Mandatory Reduction *	As of Feb. 1, 2016 **
California Water Service Company Antelope Valley	47.8%	36%	
California Water Service Company Bakersfield	31.1%	32%	
California Water Service Company Bear Gulch	35.0%	36%	
California Water Service Company Chico District	38.3%	32%	
California Water Service Company Dixon, City of	30.2%	28%	
California Water Service Company Dominguez	16.8%	16%	
California Water Service Company East Los Angeles	15.5%	8%	
California Water Service Company Hermosa Redondo	18.3%	20%	No
California Water Service Company Kern River Valley	20.1%	28%	No
California Water Service Company King City	21.8%	12%	
California Water Service Company Livermore	39.9%	24%	
California Water Service Company Los Altos/Suburban	38.1%	32%	
California Water Service Company Marysville	26.2%	24%	
California Water Service Company Mid Penninsula	26.6%	16%	
California Water Service Company Oroville	28.5%	28%	
California Water Service Company Palos Verdes	28.9%	36%	No
California Water Service Company Redwood Valley	31.7%	16%	
California Water Service Company Salinas District	24.9%	16%	
California Water Service Company Selma	39.0%	32%	
California Water Service Company South San Francisco	20.8%	8%	
California Water Service Company Stockton	22.6%	20%	
California Water Service Company Visalia	25.6%	32%	No
California Water Service Company Westlake	33.5%	36%	No
California Water Service Company Willows	30.1%	28%	

(C)

* The figures in Appendix B are from the State Water Resources Control Board's website at:
http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/2016feb/suppliercompliance_022516.pdf (C)

(D)

** A district is determined to be in compliance if it has met or is within one percent of its Mandatory Reduction requirement. (N)

[end]

Appendix I: Water Waste Prevention Ordinance

ORDINANCE NO. 2080

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF HAWTHORNE ADDING CHAPTER 8.60 TO TITLE 8 HEALTH AND SAFETY OF THE HAWTHORNE MUNICIPAL CODE ADOPTING A WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, conservation of current water supplies and minimization of the effects of water supply shortages that are the result of drought are essential to the public health, safety and welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, design of rates, method of application of water for certain uses, installation and use of water-saving devices, provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, Water Code section 375, subdivision (c) defines "public entity" to include a city, county, special district, water authority, or any other municipal public corporation or district; and

WHEREAS, pursuant to Water Code section 376 and Government Code 6061, the City of Hawthorne must publish in a newspaper of general circulation any ordinance or resolution adopting a water conservation program within 10 days after its adoption; and

WHEREAS, Water Code section 377 establishes that, from the publication of an ordinance or resolution pursuant to section 376 until the repeal of the ordinance or end of the emergency, it is a misdemeanor punishable by up to 30 days in county jail and/or a fine of up to $500 for any person to violate a requirement of the water conservation program; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow the City of Hawthorne to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, after Ordinance is adopted, the City Council may thereafter adopt a resolution proclaiming or declaring a drought emergency; and

WHEREAS, on September 23, 2014, the City of Hawthorne held a public hearing and made appropriate findings of necessity for the adoption of a water conservation program

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Hawthorne, as follows:

Section 1. The Hawthorne Municipal Code is amended by adding Chapter 8.60 to Title 8 as follows:

Chapter 8.60 Water Conservation Program

8.60.010 Short Title.

This chapter shall be known as the "Water Conservation Ordinance" of the City.

8.60.020 Purpose

This chapter is enacted for the purpose of conservation of current water supplies and minimization of the effects of water supply shortages that are the result of drought in order to protect and preserve public health, safety and welfare.

8.60.021 Contingent Enforcement

These regulations are to be implemented upon resolution proclaiming or declaring a local drought emergency and shall remain in effect for the duration of the emergency or until repeal of this ordinance.

8.60.022 Water Use Restrictions

a. Stop washing down paved surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards.

b. Stop water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, or overspray, etc. Similarly, stop water flows onto non- targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

c. Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only.

d. Use a hand-held hose equipped with a positive shut-off nozzle or bucket to water landscaped areas, including trees and shrubs located on residential and commercial properties that are not irrigated by a landscape irrigation system.

e. Irrigate nursery and commercial grower's products before 10 a.m. and after 6 p.m. only. Watering is permitted at any time with a hand-held hose equipped with a positive shut-off nozzle, a bucket, or when a drip/micro-irrigation system/equipment is used. Irrigation of nursery propagation beds is permitted at any time. Watering of livestock is permitted at any time.

f. Use re-circulated water to operate ornamental fountains.

g. Wash vehicles using a bucket and a hand-held hose with positive shut-off nozzle, mobile high pressure/low volume wash system, or at a commercial site that re- circulates (reclaims) water on-site. Avoid washing during hot conditions when additional water is required due to evaporation.

h. Serve and refill water in restaurants and other food service establishments only upon request.

i. Offer guests in hotels, motels, and other commercial lodging establishments the option of not laundering towels and linens daily.

j. Repair all water leaks within five (5) days of notification by the City of Hawthorne unless other arrangements are made with the Code Enforcement Department.

k. Use recycled or non-potable water for construction purposes when available.

8.60.023 Penalties

Pursuant to Water Code section 377 it is unlawful for any person to violate any provision or to fail to comply with any of the requirements of the Water Conservation Program. Any person who shall violate or fail to comply with any provision or requirement of this chapter shall be guilty of a misdemeanor punishable by up to 30 days in county jail and/or a fine of up to $500.

SECTION 2. If any provision, clause, sentence or paragraph of this Ordinance or the application thereof to any person or circumstance shall be held invalid, such invalidity shall not affect the other provisions of this Ordinance which can be given effect without the invalid provisions or application, and to this end the provision of this Ordinance are declared to be severable.

SECTION 3. The City Attorney is authorized to make any non-substantive or clerical changes to this ordinance.

SECTION 4. The City Clerk shall certify to the passage and adoption of this Ordinance and shall cause the same to be published once in a newspaper of general circulation, published and circulated in the City of Hawthorne, or if there is none, she shall cause it to be posted in at least three public places in the City of Hawthorne, California. The City Clerk is also directed to

forward a copy of Ordinance No. 7080 to Quality Code Publishing, 2100 Westlake Ave. N. Suite 106, Seattle, WA 98109.

PASSED, APPROVED AND ADOPTED THIS 23rd DAY OF September, 2014.

CHRIS BROWN, Mayor
City of Hawthorne, California

ATTEST:

NORBERT A HUBER, City Clerk
City of Hawthorne, California

APPROVED AS TO FORM:

RUSSELL I MIYAHIRA, City Attorney
City of Hawthorne, California

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) §
CITY OF HAWTHORNE)

I, **Monica Dicrisci**, the duly appointed Deputy City Clerk of the City of Hawthorne, California, **DO HEREBY CERTIFY** that the foregoing Ordinance, No. 2080 was duly adopted by the City Council of the City of Hawthorne, at their regular meeting of the City Council held **September 23, 2014** and that it was adopted by the following vote, to wit:

AYES: Councilmembers Reyes English, Michelin, Valentine, Vargas, Mayor Brown.

NOES: None.

ABSTAIN: None.

ABSENT: None.

Monica Dicrisci
Deputy City Clerk
City of Hawthorne, California

Appendix J: Resolution to Adopt UWMP

RESOLUTION NO. 8285

A RESOLUTION OF THE CITY COUNCIL, OF THE CITY OF HAWTHORNE, STATE OF CALIFORNIA, ADOPTING THE CITY OF HAWTHORNE'S 2020 URBAN WATER MANAGEMENT PLAN (UWMP) AND AUTHORIZING ITS FILING WITH THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.

WHEREAS, the Urban Water Management Planning Act (the Act, California Water Code Section 10610 et. seq.) requires that every urban water supplier that supplies water for municipal purposes to more than 3,000 customers prepare an Urban Water Management Plan (UWMP) every five years, the primary objective of which are to plan for the efficient management and use of the water supply; and

WHEREAS, the City of Hawthorne is an urban water supplier within the meaning of the Act; and

WHEREAS, the California Water Service Company has prepared the 2020 Urban Water Management Plan to meet the requirements of the Act in accordance with the guidelines published by the California Department of Water Resources and is made available for public review; and

WHEREAS, the 2009 Act requires that the State of California reduce daily per capita water use by twenty percent by the year 2020, and that urban water suppliers identify baseline water usage and set community water use target in the UWMP; and

WHEREAS, the Act requires Plans to be reviewed at least once every five years, and requires cities to make any amendments or changes to the UWMP which are indicated by the review; and

WHEREAS, the City of Hawthorne adopted its last UWMP on June 14, 2016; and

WHEREAS, a new UWMP must be adopted by the Council, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the City of Hawthorne has prepared and circulated for public review a draft 2020 UWMP, and a properly noticed public hearing regarding UWMP was held by the City Council on June 22, 2021; and

WHEREAS, the City of Hawthorne published notice of the public hearing of its intent to adopt an urban water management plan in the Daily Breeze on June 8th, 2021 and June 15th, 2021 and California Water Service. The City also posted notice of the public hearing on June 15, 2021. The draft Urban Water Management Plan (attached as Exhibit "A") has been made available in both the City Clerk's Department and Engineering Department since June 11, 2021.

NOW, THEREFORE BE IT RESOLVED that the City Council of the City of Hawthorne, California:

Section 1. All the recitals in Resolution No. 8285 are true and correct.

Section 2. The City Council of the City of Hawthorne finds that the City is in conformance with all applicable requirements of the Urban Water Management Planning Act.

Section 3. The City Council of the City of Hawthorne hereby adopts the City's 2020 Urban Water Management Plan and orders it to be kept on file in the office of the City Clerk.

Section 4. The City Manager is hereby authorized and directed to file the 2020 Urban Water Management Plan with the California Department of Water Resources within thirty days after the date this Resolution is adopted.

Section 5. The City Clerk shall certify to the adoption of this Resolution of the City Council of the City of Hawthorne and shall cause this Resolution and his certification to be entered in the Book of Resolutions of the Council of the City.

Section 6. This resolution shall be in full force and effect immediately upon its passage and adoption thereof.

Section 7. The City Attorney is authorized to make minor typographical changes to this Resolution that does not change the substance of this Resolution.

PASSED, APPROVED AND ADOPTED this 22nd day of June, 2021.

ALEX VARGAS
Mayor
City of Hawthorne, California

ATTEST:

DR. PAUL JIMENEZ
City Clerk
City of Hawthorne, California

APPROVED AS TO FORM:

ROBERT KIM
Interim City Attorney
City of Hawthorne, California

RESOLUTION CERTIFICATION PAGE

STATE OF CALIFORNIA)

COUNTY OF LOS ANGELES) **SS**

CITY OF HAWTHORNE)

I, Carmen Avalos, Sr. Deputy City Clerk of the City of Hawthorne, California, hereby certify that the whole number of Members of the City Council of said City is five; that Resolution No. 8285 was adopted by the City Council at their Regular Meeting held on June 22, 2021 by the following vote:

Ayes:	Council Members:	Monteiro, Patterson, Valentine, Mayor Vargas
Noes:	Council Members:	
Absent:	Council Members:	Reyes English
Abstain:	Council Members:	

Witness my hand and the seal of said City on June 23, 2021.

Carmen Avalos, Sr. Deputy City Clerk
City of Hawthorne, California