DATE: May 10, 2021

AGENDA ITEM #6

TO: Environmental Commission

FROM: Emiko Ancheta, Staff Liaison

SUBJECT: California Water Service Presentation Preparation

RECOMMENDATION:

Discuss topics and questions for California Water Service presentation in June 2021

BACKGROUND

California Water Service (Cal Water) is the City of Los Altos water provider. California Water Service was formed in 1926, in San Jose, and serves in California, Hawaii, New Mexico, and Washington. It is the third largest regulated American water utility in the country and serves customers through 28 Customer and Operations Centers throughout the state. More information can be found on their website at https://www.calwater.com/ .

DISCUSSION

The Environmental Commission's Work Plan includes Commissioner's work to coordinate communication and public education on Water Conservation. The Environmental Commission invited Cal Water to present to the Commission and will prepare questions and topics for Cal Water on water conservation and water service in Los Altos.

ATTACHMENT:

A. Preparation Questions and Topics
B. Urban Water Management Plan (2015)
C. 2019 Water Quality Report (Los Altos)

California Water Service Topics & Questions

Discuss the potential questions and topics for California Water Service's (Cal Water) presentation in June.

Current Water Usage, Quality & Supply

- Briefly explain current Los Altos water usage and trends.
- What does the current supply look like? What challenges do you foresee with supply and demand?
- Briefly explain water quality and how the process to treat water has improved.
- Are there any plans to enhance or change the treatment method?

Future Water Concerns

- What are the most current challenges with water quality? What is Cal Water's approach to handle these challenges?
- What are the challenges with water supply? What is Cal Water's approach to water conservation methods?
- How does Valley Water's support for the Delta Tunnel affect the wholesale water rates charged to Cal Water Service and water rates charged to customers in Los Altos? Is California Water Service protecting its customers and water supply? Will Cal Water collect a mark-up?

Mitigating Water Challenges

- How can Los Altos best support Cal Water's efforts to maintain high quality and adequate water supply?
- What outreach support can Cal Water offer to Los Altos to educate and inform the community?
- What is the most effective way Cal Water reaches out to the community for outreach and education?
- What is the most effective way to educate the community about water conservation?
- What can we do to improve our water conservation in Los Altos?
- Please explain the current rebate programs available to Cal Water customers.
- Does Cal Water offer customers that are on limited or fixed incomes assistance?

California Water Service

2015 Urban Water Management Plan

Los Altos Suburban District
June 2016

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List of Acronyms

AB	Assembly Bill
AF	Acre-Foot
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
BCR	Benefit-Cost Ratio
BMP	Best Management Practice
CEHTP	California Environmental Health Tracking Program
CASGEM	California Statewide Groundwater Elevation Monitoring Program
CII	Commercial, Industrial, Institutional, water use sectors
CIMIS	California Irrigation Management Information System
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CWC	California Water Code
DMMs	Demand Management Measures
DOF	Department of Finance
DWR	Department of Water Resources
eARDWP	Electronic Annual Reports to the Drinking Water Program (SWRCB)
ETo	Reference Evapotranspiration
GIS	Geographic Information System
GPCD	Gallons per Capita per Day
IOU	Investor-Owned Utility
IRWM	Integrated Regional Water Management
LAFCO	Local Agency Formation Commission
MGD	Million Gallons Per Day
MOU	Memorandum of Understanding Regarding Urban Water Conservation
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
PWS	Public Water System
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SB X7-7	Senate Bill Seven of the Senate's Seventh Extraordinary Session of 2009
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
SWRCB	State Water Resources Control Board
RUWMP	Regional Urban Water Management Plan
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WARN	Water/Wastewater Agency Response Network
WDR	Waste Discharge Requirement
WRR	Water Recycling Requirement
WSCP	Water Shortage Contingency Plan

Chapter 1
Introduction and Overview

This chapter discusses the importance and uses of this Urban Water Management Plan (UWMP), 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.

This chapter contains the following sections:

1.1 Background and Purpose

California Water Service Company (Cal Water) is an investor-owned public utility supplying water service to 1.7 million Californians through 435,000 connections. Its 24 separate water systems serve 63 communities from Chico in the North to the Palos Verdes Peninsula in Southern California. California Water Service Group, Cal Water's parent company, is also serving water to communities in Washington, New Mexico and Hawaii. Rates and operations for districts located in California are regulated by the California Public Utilities Commission (CPUC). Rates are set separately for each of the systems.

The Los Altos Suburban District was formed in 1931 with the purchase of the Los Altos Water Company by Cal Water. Water served by the District comes from local groundwater and local surface and imported water purchased from the Santa Clara Valley Water District (SCVWD). The District delivers up to 29 million gallons of water per day to more than 18,000 service connections.

The UWMP is a foundational document and source of information about Los Altos Suburban District's historical and projected water demands, water supplies, supply reliability and 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
- Source 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,
- General Plans prepared by cities and counties,
- Statewide and broad regional water resource plans prepared by the California Department of Water Resources (DWR), State Water Resources Control Board (State Board or Board), or other state agencies.

UWMPs are updated every five years. The last update was completed in 2010. This document is an update to the 2010 UWMP and carries forward information from that plan that remains current and is relevant to this plan. Although this plan is an update to the 2010 UWMP, it was developed to be a self-contained, stand-alone document and does not require readers to reference information contained in previous 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 file this plan with 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. Colloquially known as 20x2020, the Water Conservation Act of 2009 (also referred to as SB X7-7) 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 are 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.

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 Relation to Other Planning Efforts

This plan provides information specific to water management and planning by the Los Altos Suburban 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 plans include city and county General Plans, Water Master Plans, Recycled Water Master Plans, Integrated Regional Water Management Plans, Groundwater Management 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 is applicable and available.

1.4 Plan Organization

The organization of this Plan follows the same sequence as outlined in 2015 UWMP Guidebook.

Chapter 1 - Introduction and Overview

Chapter 2- Plan Preparation

Chapter 3 - System Description

Chapter 4 - System Water Use

Chapter 5- Baselines and Targets

Chapter 6 - System Supplies

Chapter 7— Water Supply Reliability

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 other tables, figures, and maps, to augment the set developed by DWR. The plan notes if a table, figure, or map is part of DWR's standardized set or supplemental to it.

Chapter 2
Plan Preparation

This chapter discusses the type of UWMP Los Altos Suburban District is preparing and includes information that will apply throughout the plan. Coordination and outreach during the development of the plan is also discussed.

This chapter includes the following sections:

2.1 Basis for Preparing a Plan

2.2 Regional Planning and Reporting

2.3 Units of Measure

2.4 Coordination and Outreach

2.1 Basis for Preparing a Plan

Per CWC §10617, Los Altos Suburban 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(d) to update and submit its 2015 UWMP to DWR by July 1, 2016.

Los Altos Suburban District is an urban retail water supplier, as defined by CWC §10608.12. Los Altos Suburban District does not provide water at wholesale.

Los Altos Suburban District operates the Public Water Systems (PWS) listed in Table 2-1. Public Water Systems are the systems that provide drinking water for human consumption and these systems are regulated by the State Water Resources Control Board (Board), Division of Drinking Water. The Board requires that water agencies report water usage and other information via the electronic Annual Reports to the Drinking Water Program (eARDWP). The information provided in this UWMP is consistent with the data reported in the eARDWP. PWS data reported to the Board is used by the state to determine whether or not a retail 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			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015 (AF)
4310001	Los Altos Suburban	18,479	10,188
	Total	**18,479**	**10,188**

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. Cal Water participates in regional water resources planning initiatives throughout California in the regions in which its 25 water districts are located. Regional groundwater resources are conjunctively managed by the Santa Clara Valley Water District (SCVWD), which is guided by its regional Groundwater Management Plan, last updated in 2012. Cal Water has also been working cooperatively with the City of Sunnyvale, SCVWD, and Apple Corp. to connect the Sunnyvale recycled water system to a new recycled water distribution system in Cupertino that will convey recycled water to the new Apple Campus. More broadly, as a retail water supplier in the San Francisco Bay Area, Cal Water participated in the development of the San Francisco Bay Area Integrated Regional Water Management Plan and the Bay Area Water Supply and Conservation Agency's Long-Term Reliable Water Supply Strategy.

2.3 Individual or Regional Planning and Compliance

Urban water suppliers may elect to prepare individual or regional UWMPs (CWC §10620(d)(1)). Los Altos Suburban District is preparing an individual UWMP.

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, Los Altos Suburban District is a member of a Regional Alliance and this UWMP provides information on the District's progress towards meeting 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	
☑	Individual UWMP
☐	Regional UWMP
Notes: Los Altos Suburban District is 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 both as an individual urban retail water supplier and as a member of its Regional Alliance.	

2.4 Fiscal or Calendar Year and Units of Measure

Annual volumes of water reported in this UWMP are measured in acre-feet (AF) and are reported on a calendar year basis. Water use and planning data reported in this UWMP for calendar year 2015 cover the full twelve months of the year, as required by the UWMP Guidelines. Table 2-3 summarizes the units of measure used throughout this UWMP.

Table 2-3: Agency Identification	
Name of Agency	California Water Service: Los Altos Suburban District
Select one or both	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
Units of Measure	
☑	Acre Feet (AF)
☐	Million Gallons (MG)
☐	Hundred Cubic Feet (CCF)

2.5 Coordination and Outreach

Coordination with other water suppliers, cities, counties, and other community organizations in the region is an important part of preparing an UWMP (CWC §10620; CWC §10642). This section identifies the agencies and organizations Los Altos Suburban District sought to coordinate with during preparation of this plan.

2.5.1 Wholesale and Retail Coordination

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. Los Altos Suburban District provided information regarding projected water supply and demand to the wholesale water suppliers listed in Table 2-4.

Table 2-4: Retail: Water Supplier Information Exchange
Los Altos Suburban District has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name
Santa Clara Valley Water District

2.5.2 Coordination with Other Agencies and the Community

Los Altos Suburban 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 7, 2016, to present the draft of the UWMP, address questions, and receive comments. Cities and counties receiving the public hearing notification from Los Altos Suburban District as required per CWC §10621 (b) are listed in Table 10-1 in Chapter 10 of this plan.

Chapter 3
System Description

This chapter provides a description of Los Altos Suburban District's water system and the service area, including climate, population, and demographics, to help in understanding various elements of water supply and demand.

This chapter includes the following sections:

3.1 Service Area General Description

3.2 Service Area Map(s)

3.3 Service Area Climate

3.4 Service Area Population and Demographics

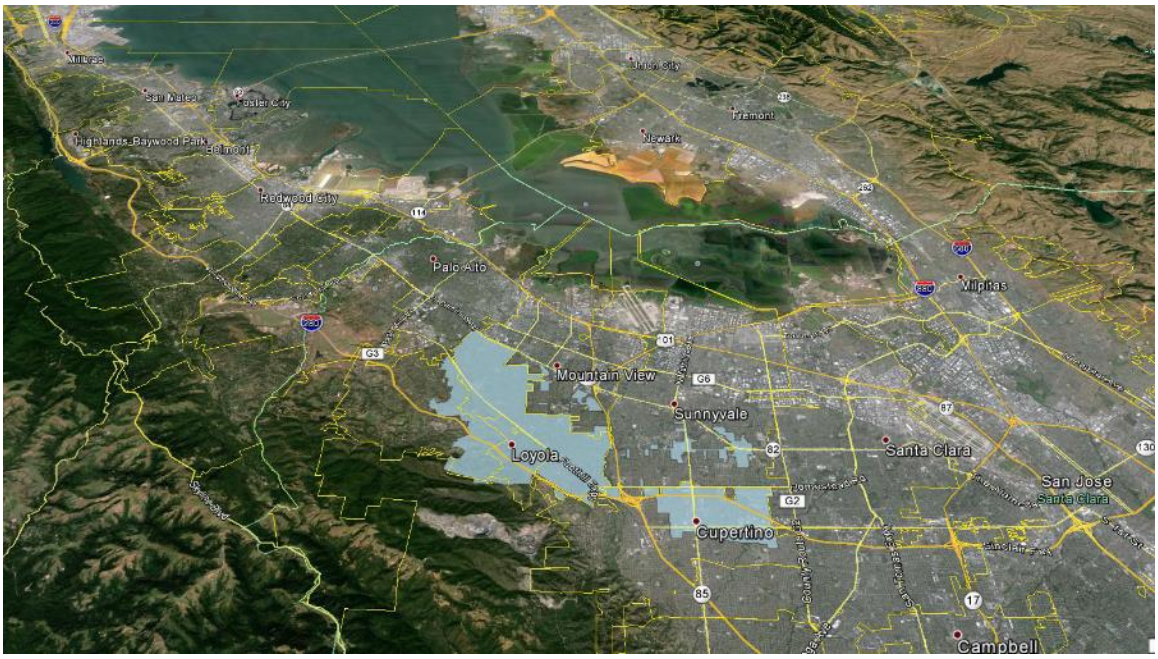
3.1 Service Area General Description

The Los Altos Suburban District is located in Santa Clara County approximately 45 miles south of San Francisco and 11 miles north of San Jose. The system serves the entire city of Los Altos, fringe sections of the cities of Cupertino, Los Altos Hills, Mountain View, Sunnyvale and adjacent unincorporated areas of Santa Clara County. The cities of Palo Alto, Mountain View, Sunnyvale and Santa Clara own and operate water systems northeast and southeast of the District. Purissima Hills Water District is north of the Town of Los Altos Hills. Major transportation links in the District include Interstate 280, State Route 82, and State Route 85. The San Jose and San Francisco International Airports accommodate commercial aircraft. Figure 3-1 shows a general location map of the District.

Major geological features located in the Los Altos region include the San Andreas, Berrocal, and Pilarcitos Faults situated just west of the District, and the Hayward and Calaveras Faults located east of the District across the bay. A major earthquake on any of these faults could disrupt water service in the District.

The Los Altos Suburban District was formed in 1931 with the purchase of the Los Altos Water Company. Water served by the District comes from local groundwater and local surface and imported water purchased from the Santa Clara Valley Water District (SCVWD). Over the last five years, the District delivered an average of 11 million gallons of water per day to more than 18,000 service connections. The water system includes 297 miles of pipeline, 65 booster pumps, and 46 storage tanks.

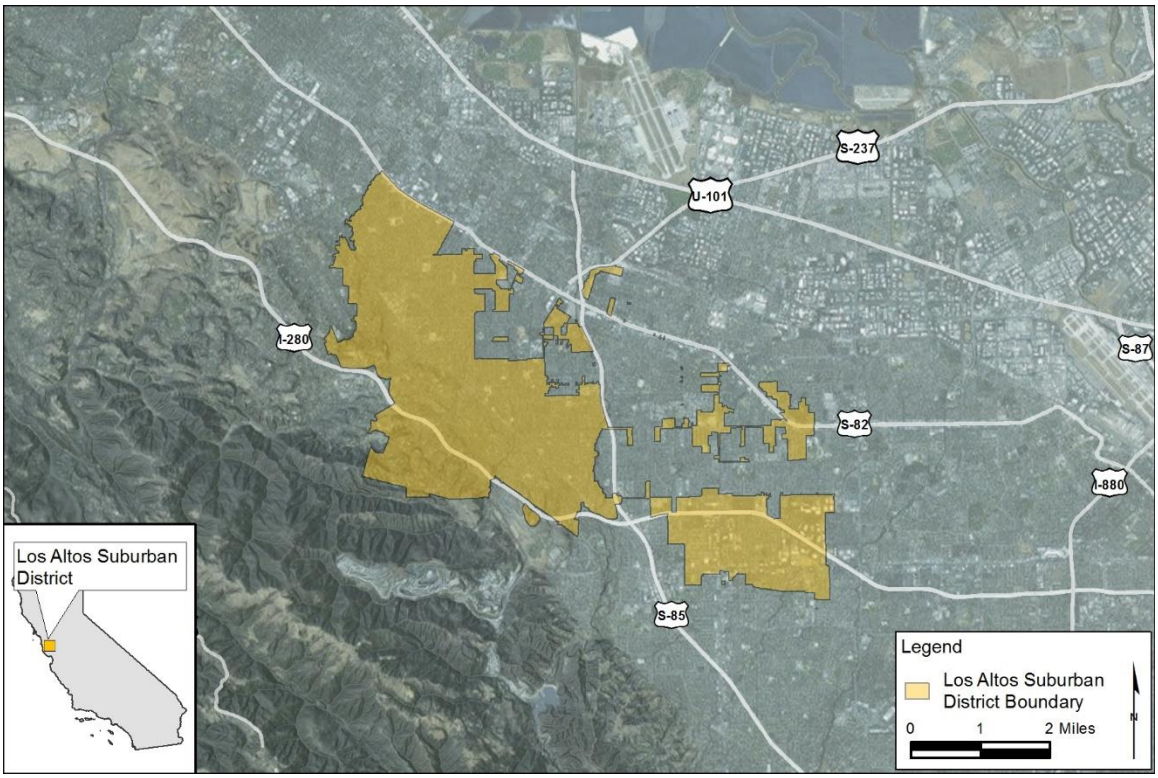
Figure 3-1. General Location Map of Los Altos Suburban District



3.2 Service Area Maps

A detailed service area map is provided in Appendix E. Figure 3-2 shows the District's service area boundaries.

Figure 3-2. Los Altos Suburban District Service Area Boundaries



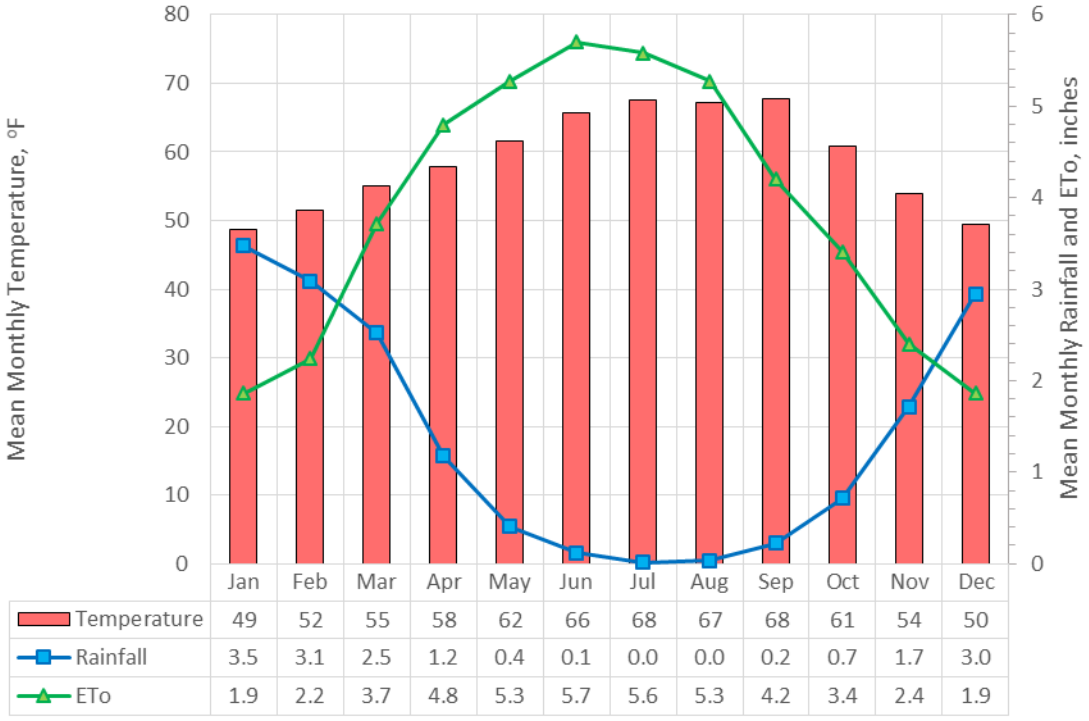
3.3 Service Area Climate

The Los Altos Suburban District has a Mediterranean climate with warm dry summers and cool wet winters. Figure 3-3 displays monthly averages for rainfall, reference evapotranspiration (ETo), and daily air temperature. Additional climate data is provided in Appendix F, worksheet 13. Rainfall and temperature data are obtained from the PRISM Climate Group.[1] ETo values are from the California Irrigation Management Information System (CIMIS).[2]

On average, the District receives between 16 and 17 inches of rainfall, annually. ETo averages 46 inches, annually. Annual rainfall is 35 percent of ETo, on average. During summer and early fall months, nearly all irrigation requirements are met with District water sources due to the lack of summer rainfall in the region. Annual rainfall in Los Altos Suburban District is highly variable, as shown in Figure 3-4. Annual rainfall has been below average in six of the last ten years. Calendar year 2013 was the driest year on record, receiving just 21 percent of average rainfall.

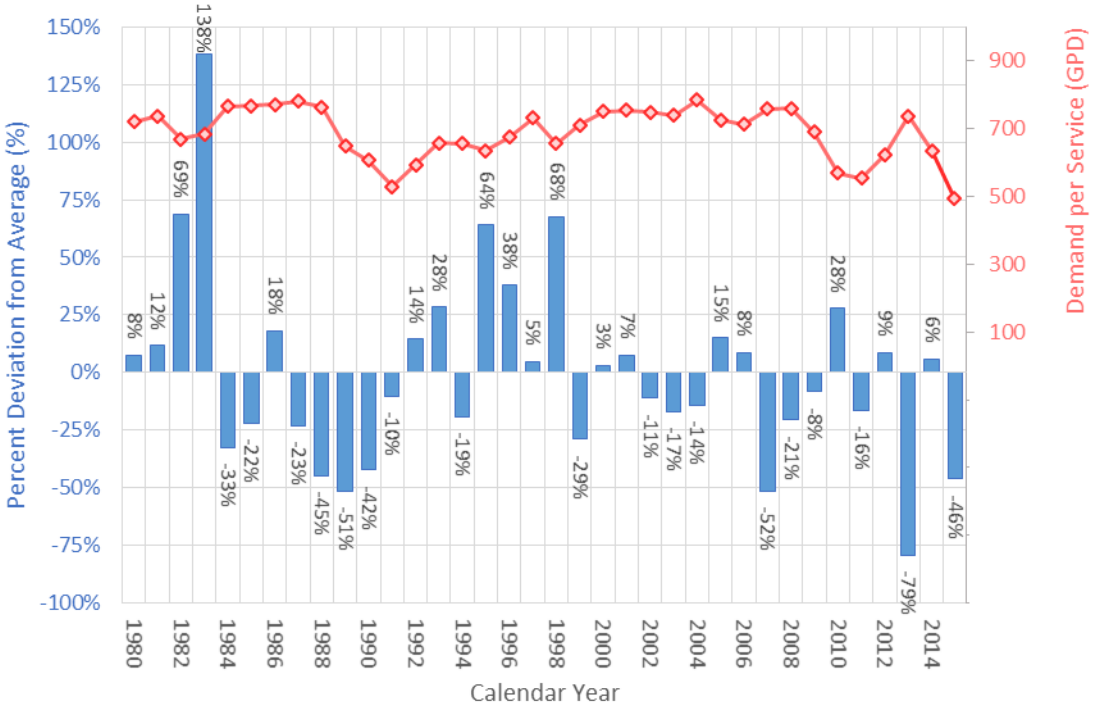
[1] www.prism.oregonstate.edu.
[2] CIMIS Zones Map, Zone 3.

Figure 3-3. Average Monthly Temperature, Rainfall, and ETo



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature	49	52	55	58	62	66	68	67	68	61	54	50
Rainfall	3.5	3.1	2.5	1.2	0.4	0.1	0.0	0.0	0.2	0.7	1.7	3.0
ETo	1.9	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.2	3.4	2.4	1.9

Figure 3-4. Annual Rainfall Deviation from Average



3.3.1 Climate Change

Potential impacts of climate change on District water demands and supplies are discussed in Chapters 4 (System Water Use), 6 (System Supplies), and 7 (Water Supply Reliability Assessment). Here it is noted that climate change is expected to bring higher average temperatures and greater variability in weather, with the potential for more frequent and deeper droughts.

The National Climatic Data Center (NCDC) has established 11 climate regions within California. Each region is defined by unique characteristics, and is shown in Figure 3-5. The Los Altos Suburban District is located in the Central Coast Region (region F on the map). The Central Coast Region has experienced a general warming trend in the last several decades, as shown in Figure 3-6. Since 1895, maximum and minimum temperatures have increased at a rate of 1.24 °F and 2.23 °F per 100 years, respectively. More recently, since 1975, maximum and minimum temperatures have increased at a rate of 1.46 °F and 3.76 °F per 100 years, respectively.

Figure 3-5. Climate Regions of California

A. North Coast Region
B. North Central Region
C. Northeast Region
D. Sierra Region
E. Sacramento-Delta Region
F. Central Coast Region
G. San Joaquin Valley Region
H. South Coast Region
I. South Interior Region
J. Mojave Desert Region
K. Sonoran Desert Region

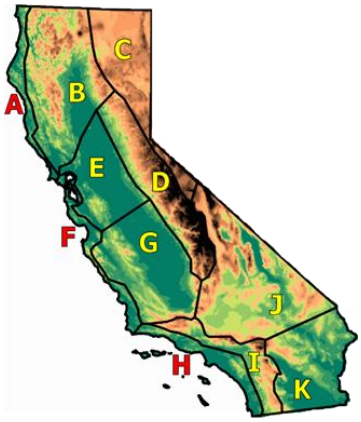
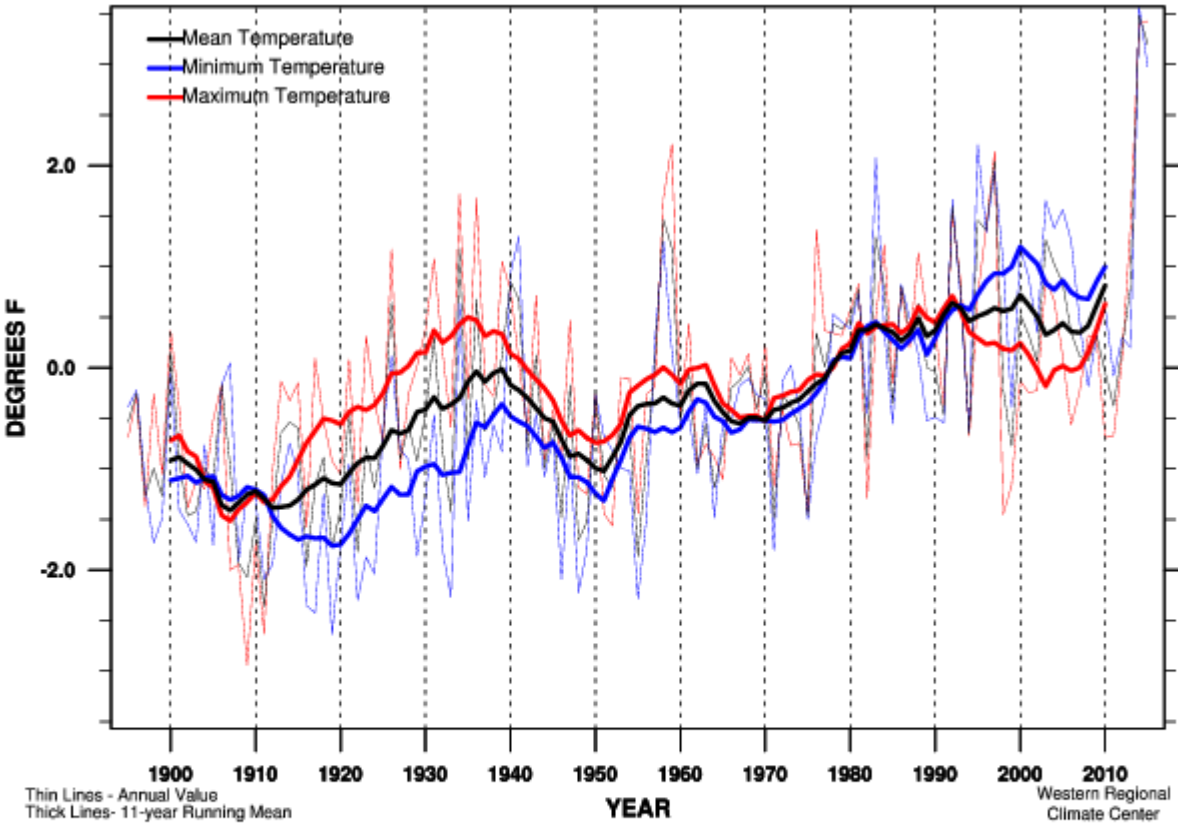


Figure 3-6. Temperature Departure, Central Coast Region



	Maximum Temperature	Minimum Temperature
Linear Trend 1895-present	+ 1.24 (± 0.50) °F/100yr	+ 2.23 (± 0.46) °F/100yr
Linear Trend 1949-present	+ 2.01 (± 1.28) °F/100yr	+ 3.60 (± 1.09) °F/100yr
Linear Trend 1975-present	+ 1.46 (± 2.87) °F/100yr	+ 3.76 (± 2.55) °F/100yr

3.4 Service Area Population and Demographics

Cal Water estimates the service area population was 68,604 in 2015. Service area population has increased at an annual rate of 1.46 percent for the past 15 years, primarily because of service area expansion. Between the 2000 and 2010 Censuses, it increased at an average annual rate of 1.74 percent. Between 2010 and 2015, the increase slowed to an average annual rate of 0.92 percent per year. Going forward, service area population is projected to increase at a rate of 0.91 percent annually until the end of the 2040 planning horizon. This is based on the long-term growth rate of single-family housing units and an acceleration in the construction of multi-family housing units.

To estimate current service area population, Cal Water uses MARPLOT and LandView 5 software to intersect District service area boundaries with Census Blocks from the 2000

and 2010 Censuses. This yields estimates of the number of housing units and population within each Census Block in the District for 2000 and 2010. From these data, Cal Water estimates the total population and the average number of persons per housing unit in the District. Cal Water applies the average number of persons per housing unit to the number of housing units served to calculate service area population in non-Census years.

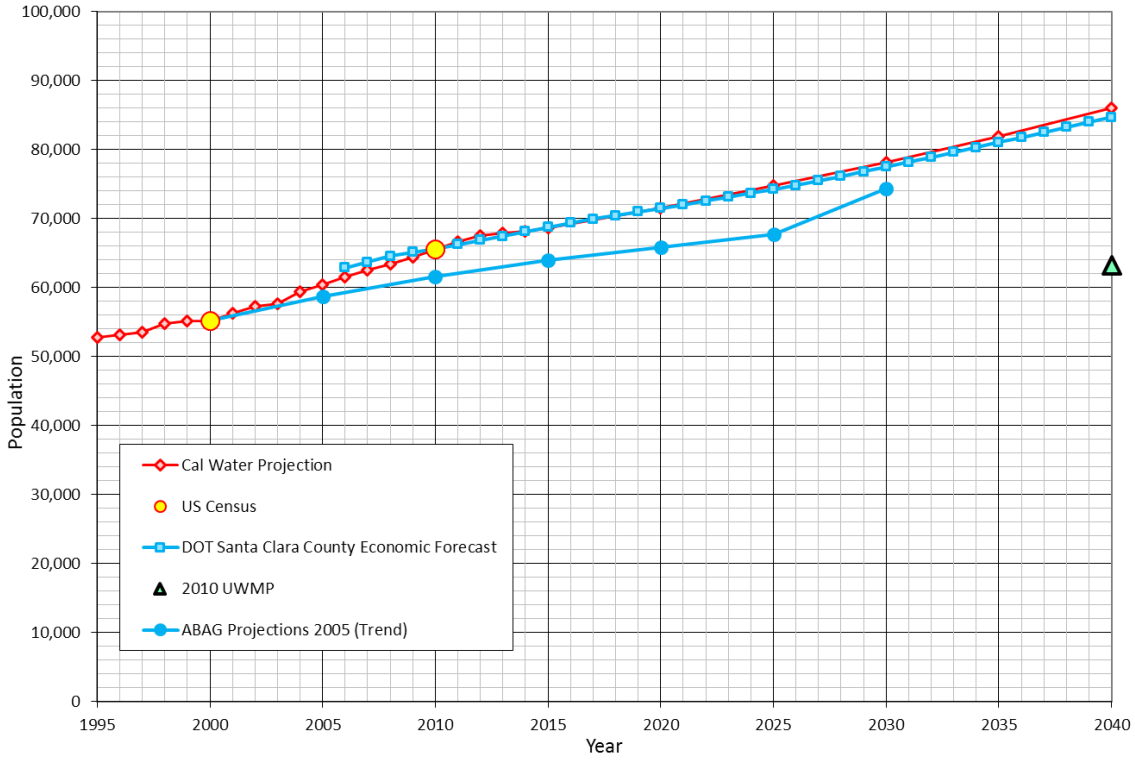
Between the 2000 and 2010 Censuses, the average number of persons per household remained constant at approximately 2.6. The projection of future population is based on this housing unit density. Projected service area population is given in Table 3-1.

Table 3-1: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040
	68,604	71,536	74,714	78,163	81,909	85,980

Cal Water's current population projection for Los Altos Suburban District is compared in Figure 3-7 to the projections made in its 2010 UWMP, as well as a projection based on population growth rate forecasts for cities served by Los Altos Suburban District prepared by the Association of Bay Area Governments (ABAG) and a projection based on California Department of Transportation's (DOT) countywide population growth rate forecast.

Figure 3-7. Population Projection Comparison



Chapter 4
System Water Use

This chapter provides a description and quantifies the Los Altos Suburban District's current water use and the projected uses through the year 2040. For purposes of the UWMP, the terms "water use" and "water demand" are used interchangeably.

This chapter is divided into the following subsections:

4.1 Recycled vs Potable and Raw Water Demand

4.2 Water Uses by Sector

4.3 Distribution System Water Losses

4.4 Estimating Future Water Savings

4.5 Water Use for Lower Income Households

4.6 Climate Change

4.1 Recycled versus Potable and Raw Water Demand

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 historical and projected potable and raw water uses in the district.

4.2 Water Uses by Sector

4.2.1 Historical Potable and Raw Water Uses

Actual water use in 2015 by customer category is shown in Table 4-1. Total system demand in 2015 was 10,188 AF. District water use in 2015 was strongly affected by the Drought Emergency Regulation adopted by the State Water Resources Control Board in May of 2015 (SWRCB Resolution No. 2015-0032). Among other things, the Drought Emergency Regulation mandated urban retail water suppliers reduce potable water use between June of 2015 and February of 2016 by percentage amounts specified by the State Water Resources Control Board. The Los Altos Suburban District was ordered to reduce potable water use by 32 percent over this period relative to use over the same period in 2013. Between June and December 2015, water use in Los Altos Suburban was 38.3 percent less than water use over the same period in 2013.

Table 4-1: Retail: Demands for Potable and Raw Water- Actual		
Use Type	2015 Actual	
	Level of Treatment When Delivered	Volume (AF)
Single Family	Drinking Water	6,615
Multi-Family	Drinking Water	595
Commercial	Drinking Water	1,930
Industrial	Drinking Water	11
Institutional/Governmental	Drinking Water	436
Other	Drinking Water	16
Losses	Drinking Water	585
	Total	**10,188**

Residential customers account for approximately 92 percent of services and 76 percent of water use in the District, most of which is associated with single-family water use. Figure 4-1 shows the distribution of services in 2015. Figure 4-2 shows historical water sales by customer category.

Figure 4-1. Distribution of Services in 2015

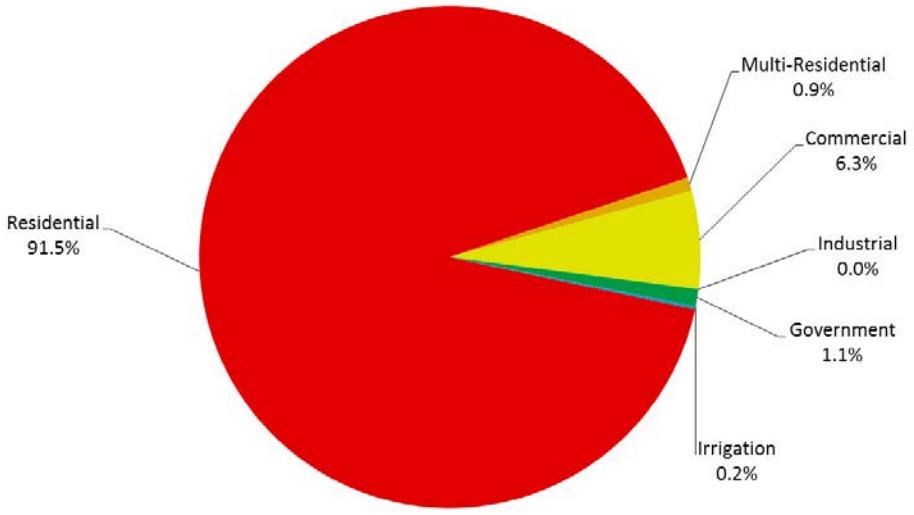
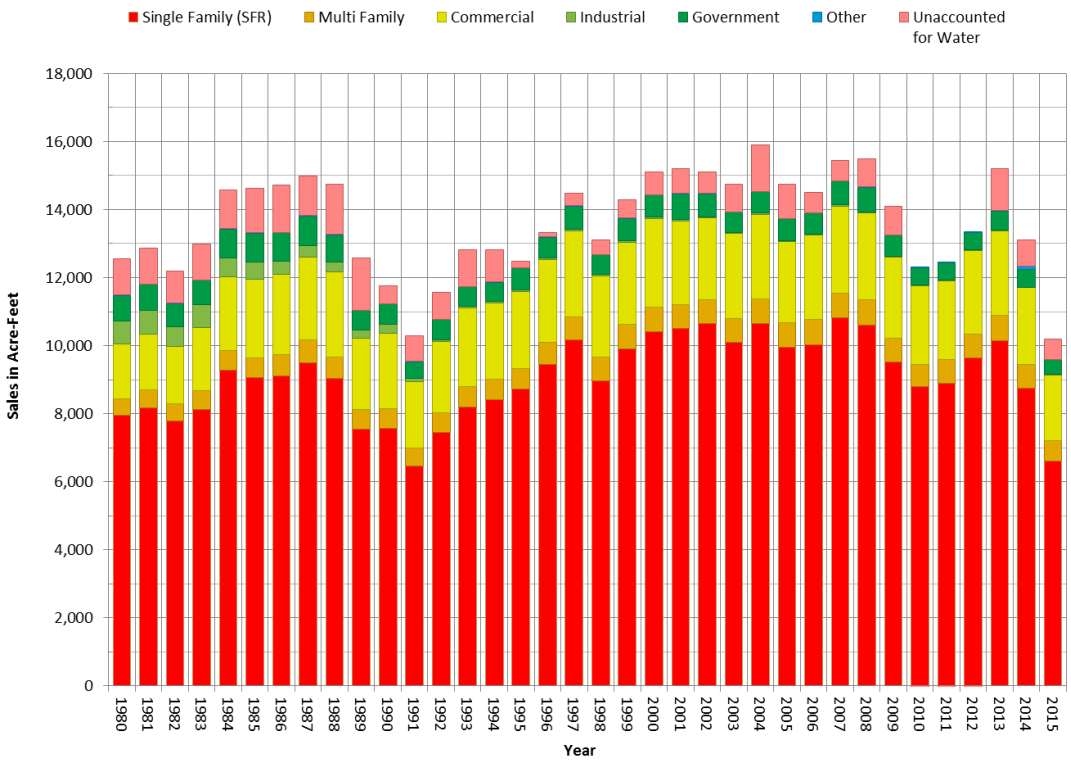


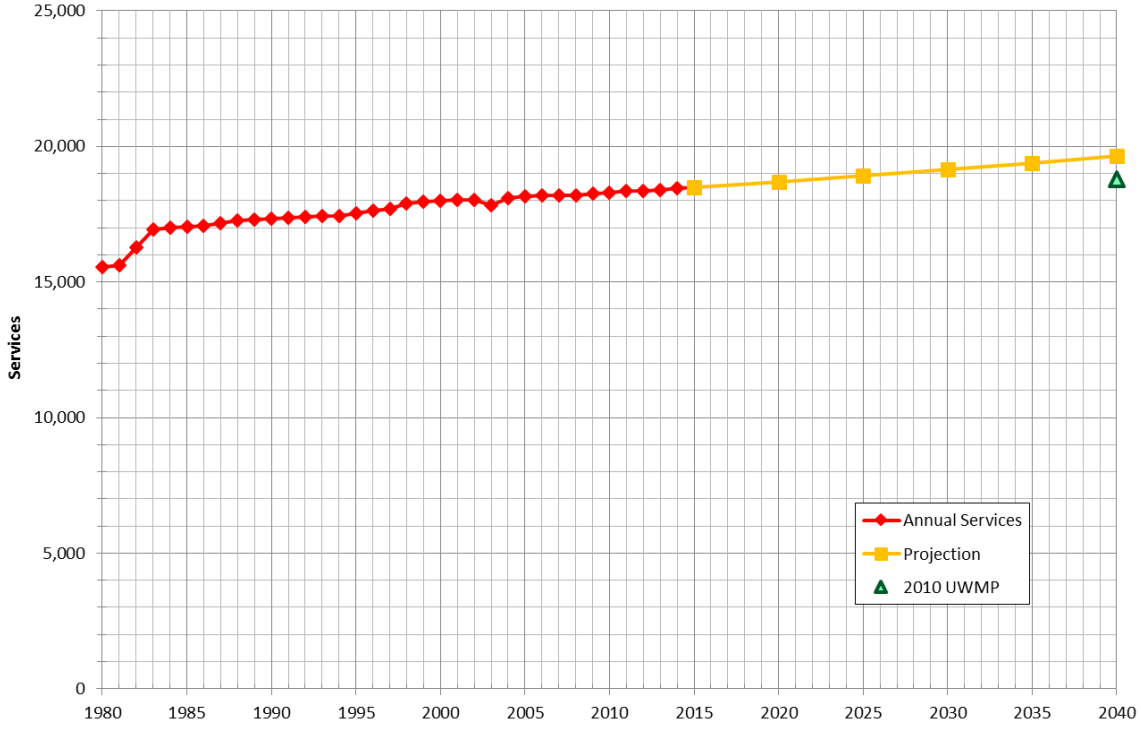
Figure 4-2. Historical Sales by Customer Category



4.2.2 Projected Potable and Raw Water Uses

Projected water demands by customer category through 2040 are shown in Tables 4-2. Future demands are estimated as the product of future services and expected water use per service. Future services are based on historical growth rates in the District. The projection of single family services is based on average growth for the last 20 years. The projection of multi-family services is based on Caltrans economic forecast for Santa Clara County. Commercial and institutional services are projected forward using the historical growth rate for the past 10 and 20 years, respectively. The forecast assumes no change in the number of industrial services. The projected average annual growth rate in services across all customer categories is approximately 0.25 percent. Historical and projected services are shown in Figure 4-3. Also shown in the figure is the services projection from Cal Water's 2010 UWMP.

Figure 4-3. Historical and Projected Services



Expected water use per service, shown in Figure 4-4, is based on weather-normalized historical use, adjusted for future expected water savings from plumbing codes and District conservation programs. Weather normalization of historical use was done econometrically using the California Urban Water Conservation Council GPCD Weather Normalization Methodology. Expected water savings from plumbing codes are presented in Section 4.4. Expected water savings from District conservation programs and projected compliance with the District's SB X7-7 2020 per capita water use target are discussed in Chapter 9. The projected trend in average use per service shown in Figure 4-4 does not account for possible effects of climate change on future demand. The potential effects of climate change on demand are discussed in Section 4.6.

Projected water uses in Table 4-2 and Figure 4-4 are predicated on unrestricted demands under normal weather conditions. Demands are assumed to partially rebound by 2020 from 2015 levels on the assumption that the State Water Resources Control Board's mandatory water use reductions end by October 2016, as currently scheduled. The difference between actual and projected demands in 2020 will critically depend on the accuracy of this assumption. If the Emergency Drought Regulations are continued beyond October 2016, then the likelihood of actual demands being less than projected demands in 2020 would be significantly increased. The projected trend in average use per service

shown in Figure 4-4 does not account for possible effects of climate change on future demand. The potential effects of climate change on demand are discussed in Section 4.6.

Figure 4-4. Historical and Projected Average Use per Service in Gallons per Day

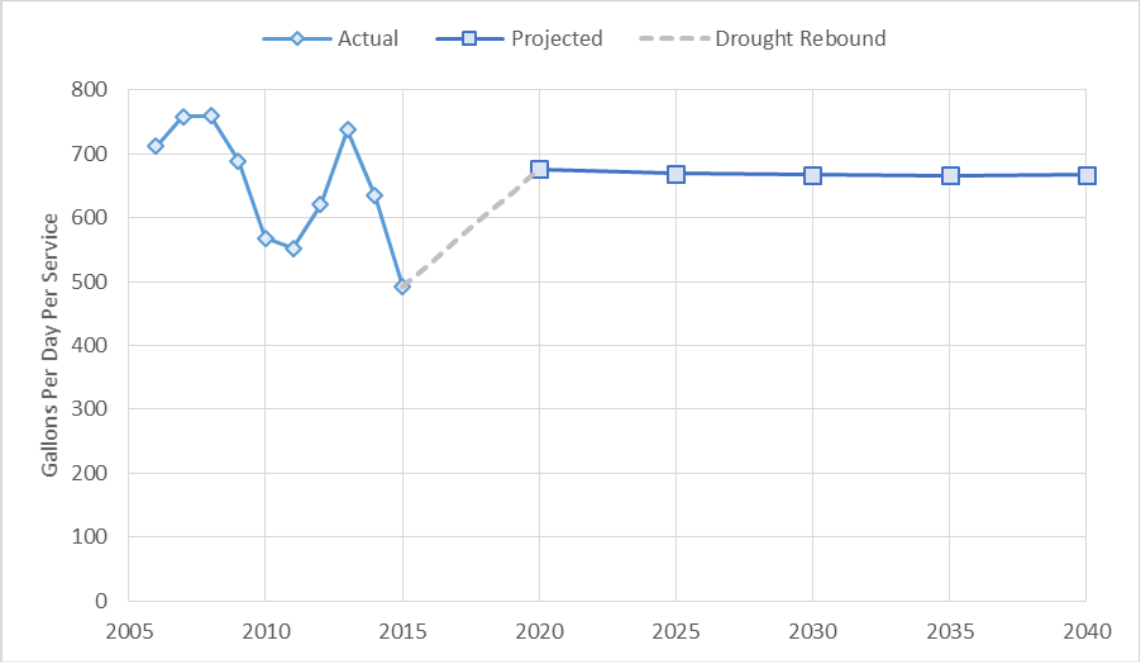


Table 4-2: Retail: Demands for Potable and Raw Water - Projected					
Use Type	Projected Water Use (AF)				
	2020	2025	2030	2035	2040
Single Family	9,756	9,750	9,787	9,842	9,909
Multi-Family	865	901	960	1,034	1,122
Commercial	2,465	2,442	2,445	2,448	2,454
Industrial	20	20	20	20	20
Institutional/Governmental	636	657	681	705	731
Other	28	28	28	28	28
Losses	387	392	397	403	408
Total	**14,156**	**14,190**	**14,318**	**14,480**	**14,673**

4.2.3 Total Water Demand Including Recycled Water

Total water demands, including recycled water uses, are shown in Table 4-3. Current and projected recycled water use is discussed in Chapter 6, Section 6.5.

Table 4-3: Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040
Potable and Raw Water *From Tables 4-1 and 4-2*	10,188	14,156	14,190	14,318	14,480	14,673
Recycled Water Demand *From Table 6-4*	0	220	261	261	261	261
Total Water Demand	**10,188**	**14,376**	**14,451**	**14,579**	**14,741**	**14,934**

4.3 Distribution System Water Losses

For the 2015 UWMP, urban retail water suppliers are required to quantify distribution system water losses for the most recent 12-month period available. For the Los Altos Suburban District, this period is January 1 to December 31 2014. System water loss was calculated using the DWR Water Audit Method, as described in Appendix L of the UWMP Guidelines. Distribution system water loss is reported in Table 4-4. The DWR Water Audit Method calculates two types of water losses: (1) apparent losses and (2) real losses. Apparent losses include unauthorized consumption, metering errors, and data errors. Apparent losses represent unauthorized or unrecorded water delivered to customers. Real losses include distribution system discharges, spills, and leaks of water. Real losses represent a physical loss of water to the system. Table 4-4 reports combined apparent and real distribution system water loss. A copy of the completed water balance worksheet for the Los Altos Suburban District is provided in Appendix M. Actions the Los Altos Suburban District is taking to reduce real and apparent distribution system water losses are discussed in Chapter 9.

Table 4-4: Retail: Water Loss Summary Most Recent 12 Month Period Available	
Reporting Period Start Date	Volume of Water Loss*
01/2014	604
*Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	

4.4 Estimating Future Water Savings

The projections of future water use in Table 4-2 incorporate expected water savings from plumbing codes and appliance standards for residential and commercial toilets, urinals, clothes washers, dishwashers, and showerheads. These savings are commonly referred to as *passive water savings* to differentiate them from water savings resulting from water supplier conservation programs, which are termed *active water savings*. Active water savings resulting from the Los Altos Suburban District's implementation of demand

management measures are discussed in Chapter 9 of this plan. The estimates of passive water savings presented in this chapter were developed with the Alliance for Water Efficiency's *Water Conservation Tracking Tool* using data on the vintage, number, and water using characteristics of residences and businesses within Los Altos Suburban District's service area.

Confirmation that the water use projections contained in this plan incorporate projected future water savings from plumbing codes and appliance standards is provided in Table 4-5. The estimated volume of future water savings from plumbing codes and standards is summarized in Table 4-6.

Table 4-5: Retail Only: Inclusion in Water Use Projections	
Future Water Savings Included Y/N	Yes
If "Yes" to above, state the section or page number where citations of the codes, ordinances, etc… utilized in demand projections are found.	Location in UWMP: Section 4.4 of Chapter 4
Lower Income Residential Demands Included	Yes

Table 4-6: Retail Only: Future Passive Savings						
	2015	2020	2025	2030	2035	2040
Passive Savings (AF)	12	187	332	450	549	632

The following codes and standards form the basis for the estimated volume of future passive water savings:

- 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% 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. EPA estimates that Energy Star washers comprised at least 60 percent of the residential market and 30 percent of the commercial market in 2011.[3] 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% reduction in indoor water use from a calculated baseline using a set of worksheets provided with the CalGreen guidelines.

- 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” as follows:
    - any toilet manufactured to use more than 1.6 gallons of water per flush;
    - any urinal manufactured to use more than one gallon of water per flush;
    - any showerhead manufactured to have a flow capacity of more than 2.5 gallons of water per minute; and
    - any interior faucet that emits more than 2.2 gallons of water per minute.

  For single-family residential property, the compliance date is January 1, 2017. For multi-family and commercial property, it is January 1, 2019. In advance of these dates, the law requires effective January 1, 2014 for building alterations and improvements to all residential and commercial property that water-conserving plumbing fixtures replace all noncompliant plumbing fixtures as a condition for issuance of a certificate

[3] EPA Energy Star Unit Shipment and Market Penetration Report Calendar Year 2011 Summary.

of final completion and occupancy or final permit approval by the local building department.

SB 407 also requires effective January 1, 2017 that a seller or transferor of single-family residential property disclose 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 go 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 is in compliance with SB 407 requirements. If enforced, these two laws will require retrofit of non-compliant plumbing fixtures upon resale or major remodeling for single-family residential properties effective January 1, 2017 and for multi-family and commercial properties effective January 1, 2019.

California has also adopted regulations governing the future use of landscape water use.

- The California Water Commission approved the State's updated Model Water Efficient Landscape Ordinance (MWELO) on July 15, 2015. The updated MWELO supersedes the State's MWELO developed pursuant to AB 1881. Local agencies have until December 1, 2015 to adopt the MWELO or to adopt a Local Ordinance which must be at least as effective in conserving water as MWELO. Local agencies working together to develop a Regional Ordinance have until February 1, 2016 to adopt. The size of landscapes subject to MWELO has been lowered from 2500 sq. ft. to 500 sq. ft. The size threshold applies to residential, commercial, industrial and institutional projects that require a permit, plan check or design review. Additionally, the maximum applied water allowance (MAWA) has been lowered from 70% of the reference evapotranspiration (ETo) to 55% for residential landscape projects, and to 45% of ETo for non-residential projects. This water allowance reduces the landscape area that can be planted with high water use plants such as cool season turf. For typical residential projects, the reduction in the MAWA reduces the percentage of landscape area that can be planted to high water use plants from 33% to 25%. In typical non-residential landscapes, the reduction in MAWA limits the planting of high water use plants to special landscape areas. The revised MWELO allows the irrigation efficiency to be entered for each area of the landscape. The site-wide irrigation efficiency of the previous ordinance (2010) was 0.71; for the purposes of estimating total water use, the revised MWELO defines the irrigation efficiency (IE) of drip irrigation as 0.81 and overhead irrigation and other technologies must meet a minimum IE of 0.75.

- CalGreen requires that automatic irrigation system controllers for new landscaping provided by a builder and installed at the time of final inspection must be weather- or

soil moisture-based controllers that automatically adjust irrigation in response to changes in plant water needs as weather or soil conditions change.

The estimates of future water savings in Table 4-6 do not include potential landscape water savings from implementation of MWELO or CalGreen because estimating these savings required data that was not available to the District at the time this plan was prepared, including data on existing and future landscape areas, plant materials, irrigation equipment, and probable enforcement of and compliance with the landscape design and irrigation equipment requirements.

4.5 Water Use for Lower Income Households

California Senate Bill No. 1087 (SB 1087), Chapter 727, was passed in 2005 and amended Government Code Section 65589.7 and Water Code Section 10631.1. SB 1087 requires local governments to provide a copy of their adopted housing element to water and sewer providers. In addition, it requires water providers to grant priority for service allocations to proposed developments that include housing units for lower income families and workers. Subsequent revisions to the UWMP Act require water providers to develop water demand projections for lower income single and multi-family households.

Cal Water does not maintain records of the income level of its customers and does not discriminate in terms of supplying water to any development. Cal Water is required to serve any development that occurs within its service area, regardless of the income level of the future residents. It is ultimately the City's or County's responsibility to approve or not approve developments within the service area.

As a benefit to its customers, Cal Water offers a Low Income Rate Assistance Program (LIRA) in all of its service districts. Under the LIRA Program lower income customers that qualify are able to receive a discount on their monthly bills.

For the purposes of estimating projected demand of lower income households, Cal Water used the General Plan Housing Elements from the cities in the service area to estimate the percentage of households in the service area that qualify as lower income.[4] Based on these data, 25 percent of total households are classified as lower income. Lower income households are defined as households with income that is less than or equal to 80 percent of the median income for the area. Projected residential water demand for lower income households is shown in Table 4-7. These demands are incorporated into the service area demand projection given in Table 4-2.

[4] City of Los Altos 2015-2023 Housing Element, Table B-9; Town of Los Altos Hills General Plan Housing Element Update 2015-2023, Table HE-16; City of Cupertino Housing Element Technical Report, Table 2.4; City of Sunnyvale Housing Element of the General Plan January 31, 2015 – January 31, 2023, Table 13.

Table 4-7. Residential Demand of Lower Income Households						
	2015 (actual)	2020	2025	2030	2035	2040
Demand (AF)	1,788	2,634	2,641	2,665	2,697	2,735

4.6 Climate Change

A hotter and dryer climate is expected to increase demand for outdoor water use. Cal Water has econometrically estimated the sensitivity of class-level water demand to deviations in precipitation and temperature from their long-term averages using historical data on monthly water sales and weather for the District.[5] The weather effect is measured as predicted sales conditional on observed weather versus predicted sales conditional on long-term average weather. The predicted weather effect is then summed on an annual basis and expressed as a percentage of annual weather-normalized sales. An estimate of the variance in annual water sales caused by departures in precipitation and temperature from their long term averages was developed for each customer class. The variance estimates of class-level water sales were weighted and summed across classes for an aggregate district-level estimate of the standard deviation of water demand induced by variation in precipitation and temperature. The standard deviation in District demand due to weather variability is 4.9 percent. The maximum deviation, based on historical weather data, is 7.9 percent.

A selection of climate change scenarios for 2040 for the Southwest United States contained in the Regional Climate Trends and Scenarios for the U.S. National Climate Assessment, Part 5, is shown in Table 4-8, along with the expected effect on District water demand.[6] Based on the scenarios in the table, temperature increases by 2040 associated with climate change imply a 2 to 3 percent increase in demand relative to weather-normalized demand. This expected effect is solely due to predicted changes in temperature. While the climate change scenarios also include predicted changes in the pattern and amount of precipitation, this has not been included in Cal Water's demand modeling at this time due to the large uncertainty associated with these estimates.[7]

The predicted effect of climate change on demand is based on current patterns of outdoor water use. It does not account for changes households and businesses may make in the

[5] A&N Technical Services, Inc., Cal Water Long Term Water Demand Forecast Model, December 2014.
[6] 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.
[7] Ibid. A discussion and depiction of the uncertainty around the precipitation forecasts is found on pages 55-56, Table 7, and Figure 27 of the cited report.

way they use water in the future given a warming climate. For example, social norms and economic incentives regarding the type and extent of residential and non-residential landscaping may change over time which could lead to outdoor water use having a lower share of total demand compared to what is currently observed. In this case, the predicted effect of climate change would be offset to some extent by changes in the way households and businesses use water.

Table 4-8. Climate Change Effect on Demand

Climate Scenario	Year 2040 degree C	Year 2040 degree F	% Change from mean Temperature	Effect on Demand
B1	1.4	2.5	3.4%	2.0%
A1B	1.6	2.9	3.9%	2.3%
A2	1.5	2.7	3.7%	2.1%
80%ile	2.0	3.6	4.9%	2.8%

Chapter 5
Baselines and Targets

With the adoption of the Water Conservation Act of 2009, also known as SB X7-7, the state is required to reduce urban water use by 20 percent by the year 2020. Each urban retail water supplier must determine baseline per capita water use during their baseline period and also target water use for the years 2015 and 2020 in order to help the state achieve the 20 percent reduction.

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) As shown in Chapter 2, the Los Altos Suburban District meets both of these thresholds.

In this Chapter, the Los Altos Suburban District demonstrates compliance with its per capita water use target for the year 2015. This will also demonstrate whether or not the District is currently on track to achieve its 2020 target. Compliance will be verified by DWR's review of the SB X7-7 Verification Tables submitted with this plan. These tables are included with this plan in Appendix I.

This chapter includes the following sections:

5.1 Wholesale Agencies

5.2 Updating Calculations from 2010 UWMP

5.3 Baseline Periods

5.4 Service Area Population

5.5 Gross Water Use

5.6 Baseline Daily per Capita Water Use

5.7 2015 and 2020 Targets

5.8 2015 Compliance Daily per Capita Water Use

5.9 Regional Alliance

5.1 Wholesale Agencies

Wholesale water suppliers are not required to establish and meet baseline and targets for daily per capita water use. However, they can provide important support to their retail water suppliers through adopted policies and programs to encourage demand reduction in their service area. Wholesale water suppliers can also participate in a Regional Alliance established to meet the region's daily per capita water use targets.

The Los Altos Suburban District coordinated its demand reduction policies and programs with the wholesale water suppliers listed in Table 2-4.

5.2 Updating Calculations from 2010 UWMP

The District reported base period population and water use, selected the 2020 target method, and calculated its 2020 water use target in its 2010 UWMP. SB X7-7 allows the District to update these estimates, change the target methodology, and revise its 2020 urban water use target in its 2015 UWMP (CWC 10608.20).

Per the UWMP Guideline requirements, Cal Water has updated District population estimates to incorporate information from the 2010 Census that was not available at the time the 2010 UWMP was prepared. It has not changed the base period or methodology upon which the District's 2020 urban water use target is based. The updated population estimates are higher than the estimates in the 2010 plan for most years. A comparison between the two sets of population estimates is provided in Appendix I. The revised population estimates decreased the District's 2020 water use target from 193 to 185 GPCD.

5.3 Baseline Periods

Under SB X7-7 urban retail water suppliers must establish two baseline periods for historical water use and population in the District. The first of these is either a 10- or 15-year continuous period ending between 2004 and 2010. The second is a 5-year continuous period ending between 2007 and 2010. The 10-15 year period is used to establish the 2020 water use target under Method 1 (CWC 10608.20). The 5-year period is used to confirm that the selected 2020 target meets SB X7-7's minimum water use reduction requirements (CWC 10608.22). The baseline periods the District is using are summarized in SB X7-7 Table 1.

SB X7-7 Table 1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	15,490	Acre Feet
	2008 total volume of delivered recycled water	0	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	percent
	Number of years in baseline period[1]	10	years
	Year beginning baseline period range	1996	
	Year ending baseline period range[2]	2005	
5-year baseline period	Number of years in baseline period	5	years
	Year beginning baseline period range	2003	
	Year ending baseline period range[3]	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 ending year must be between December 31, 2004 and December 31, 2010.			
[3]The ending year must be between December 31, 2007 and December 31, 2010.			

5.3.1 Determination of the 10-15 Year Baseline Period

The 10-15 year baseline period must be a continuous period ending between 2004 and 2010. It can be up to 15 years in length if recycled water comprised 10 percent or more of the retail urban water supplier's 2008 deliveries. Otherwise, the baseline period is set to 10 years.

The Los Altos Suburban District did not have recycled water deliveries in 2008. Therefore it is using a 10-year baseline period commencing January 1, 1996 and running through December 31, 2005. The 10-year baseline period is unchanged from the 2010 UWMP.

5.3.2 Determination of the 5-Year Baseline

The 5-year baseline period must be a continuous period ending between 2007 and 2010. The Los Altos Suburban District's 5-year baseline period commences January 1, 2003 and runs through December 31, 2007. The 5-year baseline period is unchanged from the 2010 UWMP.

5.4 Service Area Population

As noted above, Cal Water has updated the baseline period population estimates to incorporate information from the 2010 Census that was not available at the time the 2010

UWMP was prepared. Updating resulted in a small change in the original population estimates.

Urban retail water suppliers must estimate their service area population in a manner that is consistent with DWR requirements. For water suppliers whose boundaries correspond by 95 percent or more with a city or census designated place, population estimates prepared by the Department of Finance may be used. Where this is not the case, water suppliers may use the DWR Population Tool or estimate their population using other methods, provided these methods comply with Methodology 2 – Service Area Population – of DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*.

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. A comparison of the estimates generated by the two approaches is provided in Appendix I. 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.

The population methodology and estimates used to calculate baseline and 2015 daily per capita water use are summarized in SB X7-7 Tables 2 and 3.

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. DWR Population Tool**
☑	**3. Other** DWR recommends pre-review

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1996	53,094
Year 2	1997	53,481
Year 3	1998	54,755
Year 4	1999	55,092
Year 5	2000	55,177
Year 6	2001	56,245
Year 7	2002	57,256
Year 8	2003	57,644
Year 9	2004	59,362
Year 10	2005	60,450
5 Year Baseline Population		
Year 1	2003	57,644
Year 2	2004	59,362
Year 3	2005	60,450
Year 4	2006	61,529
Year 5	2007	62,565
2015 Compliance Year Population		
2015		68,604

5.5 Gross Water Use

Annual gross water use is defined as the amount of water entering the District's distribution system over a 12-month period, excluding:

- Recycled water delivered within the service area
- Indirect recycled water
- Water placed in long-term storage
- Water conveyed to another urban supplier
- Water delivered for agricultural use

Gross water use must be reported for each year in the baseline periods as well as 2015. The Los Altos Suburban District's annual gross water use is summarized in SB X7-7 Table 4. Volumes are in acre-feet. No water delivery exclusions are taken.

SB X7-7 Table 4: Annual Gross Water Use									
	Baseline Year	**Volume Into Distrib. System**	**Deductions**						**Annual Gross Water Use**
			Recycled Water	Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water	Water Delivered for Agricultural Use	Process Water	
10 to 15 Year Baseline - Gross Water Use									
Year 1	1996	13,319	0	0	0	0	0	0	13,319
Year 2	1997	14,479	0	0	0	0	0	0	14,479
Year 3	1998	13,110	0	0	0	0	0	0	13,110
Year 4	1999	14,278	0	0	0	0	0	0	14,278
Year 5	2000	15,111	0	0	0	0	0	0	15,111
Year 6	2001	15,196	0	0	0	0	0	0	15,196
Year 7	2002	15,104	0	0	0	0	0	0	15,104
Year 8	2003	14,738	0	0	0	0	0	0	14,738
Year 9	2004	15,898	0	0	0	0	0	0	15,898
Year 10	2005	14,758	0	0	0	0	0	0	14,758
10 - 15 year baseline average gross water use									**14,599**
5 Year Baseline - Gross Water Use									
Year 1	2003	14,738	0	0	0	0	0	0	14,738
Year 2	2004	15,898	0	0	0	0	0	0	15,898
Year 3	2005	14,758	0	0	0	0	0	0	14,758
Year 4	2006	14,518	0	0	0	0	0	0	14,518
Year 5	2007	15,451	0	0	0	0	0	0	15,451
5 year baseline average gross water use									**15,073**
2015 Compliance Year - Gross Water Use									
2015		10,188	0	0	0	0	0		**10,188**

5.6 Baseline Daily Per Capita Water Use

Baseline daily per capita water use is calculated by converting annual gross water use to gallons per day and dividing by service area population. Daily per capita water use for each baseline year and 2015 are summarized in SB X7-7 Table 5.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year		Service Area Population	Annual Gross Water Use (AF)	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1996	53,094	13,319	224
Year 2	1997	53,481	14,479	242
Year 3	1998	54,755	13,110	214
Year 4	1999	55,092	14,278	231
Year 5	2000	55,177	15,111	244
Year 6	2001	56,245	15,196	241
Year 7	2002	57,256	15,104	235
Year 8	2003	57,644	14,738	228
Year 9	2004	59,362	15,898	239
Year 10	2005	60,450	14,758	218
10-15 Year Average Baseline GPCD				**232**
5 Year Baseline GPCD				
Baseline Year		Service Area Population	Annual Gross Water Use (AF)	Daily Per Capita Water Use (GPCD)
Year 1	2003	57,644	14,738	228
Year 2	2004	59,362	15,898	239
Year 3	2005	60,450	14,758	218
Year 4	2006	61,529	14,518	211
Year 5	2007	62,565	15,451	220
5 Year Average Baseline GPCD				**223**
2015 Compliance Year GPCD				
2015		68,604	10,188	**133**

5.7 2015 and 2020 Targets

Urban retail water suppliers may select from four GPCD target methods (CWC 10608.20).

- Target Method 1: 20% reduction from 10-year baseline GPCD
- Target Method 2: Water use efficiency performance standards
- Target Method 3: 95% of Hydrologic Region Target
- Target Method 4: Savings by water sector, DWR Method 4

Regardless of target method selected, the final target cannot exceed 95 percent of the 5-year baseline period average GPCD (CWC 10608.22).

The Los Altos Suburban District has selected Target Method 1, which sets the 2020 target to either 80 percent of the 10-year baseline or 95 percent of the 5-year baseline average GPCD, whichever is less. This results in a 2020 target of 185 GPCD. The 2015 interim target of 209 GPCD is the midpoint between the 10-year baseline average GPCD and the 2020 target.

The District's GPCD baselines and targets are summarized in Table 5-1.

Table 5-1: Baselines and Targets Summary

Baseline Period	Start Years	End Years	Average GPCD	2015 Interim Target	Confirmed 2020 Target
10-15 year	1996	2005	232	209	185
5 Year	2003	2007	223		

5.8 2015 Compliance Daily per Capita Water Use

Compliance daily per capita water use in 2015 is summarized in Table 5-2. In reporting their compliance daily per capita water use, urban retail water suppliers may elect to consider the following factors and adjust the estimate accordingly (CWC 10608.24):

- Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
- Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.
- Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

Cal Water is not electing to make any adjustments to the District's compliance daily per capita water use in 2015. The Los Altos Suburban District's 2015 compliance daily per capita water use is 133 gallons compared to its 2015 interim target of 209 gallons. The Los Altos Suburban District is in compliance with its 2015 interim target.

The low per capita water use in 2015 partially reflects the impacts of the Drought Emergency Regulation adopted by the State Water Resources Control Board in May of 2015 (SWRCB Resolution No. 2015-0032). Among other things, the Drought Emergency Regulation mandated urban retail water suppliers reduce potable water use between

June of 2015 and February of 2016 by percentage amounts specified by the State Water Resources Control Board. The Los Altos Suburban District was ordered to reduce potable water use by 32 percent over this period relative to use over the same period in 2013.

However, the Drought Emergency Regulation does not explain all of the decline in per capita water use, which has been trending downward since 2000 when it reached its zenith of 244 gallons per person per day. By 2014 this had fallen by 30 percent, to 172 GPCD. Between 2014 and the end of 2015, per capita water use had fallen an additional 23 percent, to 133 GPCD.

Table 5-2: 2015 SB X7-7 Compliance

2015 Actual GPCD	2015 Interim Target	Optional Adjustments to 2015 GPCD *From Methodology 8*				Actual as Percent of Target	In Compliance ? Y/N
		Extraordinary Events	Economic Adjust	Weather Adjust	Adjusted Actual 2015 GPCD		
133	209	0	0	0	133	64%	YES

5.9 Regional Alliance

Urban retail water suppliers may report on the requirements of SB X7-7 individually or as a member of a "Regional Alliance." The Los Altos Suburban District is a member of a Regional Alliance and this UWMP provides information on the District's progress towards meeting its SB X7-7 water conservation targets as both an individual urban retail water supplier and a member of a Regional Alliance.

The Los Altos Suburban District has formed a Regional Alliance with other Cal Water urban retail water districts located in the San Francisco Bay Area Hydrologic Region. Compliance with the Regional Alliance's 2015 interim target is demonstrated in Appendix I and summarized in Table SB X7-7 RA Table 1 – Compliance Verification on the following page.

The Regional Alliance's 2015 compliance daily per capita water use is 110 gallons compared to its 2015 interim target of 164 gallons. The Regional Alliance is in compliance with its 2015 interim target.

SB X7-7 RA Table 1: Compliance Verification				
2015 GPCD (Actual)	2015 Interim Target GPCD	Economic Adjustment[1] *Enter "0" if no adjustment*	Adjusted 2015 GPCD *(if economic adjustment used)*	Did Alliance Achieve Targeted Reduction for 2015?
110	164	0	110	YES

[1]Adjustments for economic growth can be applied to either the individual supplier's data or to the aggregate regional alliance data (but not both), depending upon availability of suitable data and methods.

Chapter 6
System Supplies

The water supply for the Los Altos Suburban District is satisfied by a combination of well production and purchases from the Santa Clara Valley Water District (SCVWD). The distribution of sources has averaged approximately 35 percent groundwater production and 65 percent purchased water over the last five years.

The actual ratio of groundwater production to purchased water depends upon the supply available from SCVWD. SCVWD imports surface water to the region through the South Bay Aqueduct of the State Water Project (SWP), the San Felipe Division of the federal Central Valley Project (CVP), and through the San Francisco Public Utilities Commission's (SFPUC) Regional Water System. However, Cal Water only receives water from the SWP and CVP.

The purchased water projections are based on historical trends being extended to 2040 and include "Non-Contract" water. Details of the availability and scheduling of surface water deliveries are described further in Section 6.1.

As discussed in Section 6.2, groundwater will be used to make up the remaining supply that imported water cannot meet in a given year. The groundwater supply amounts listed in Table 6-9 represent the difference between the total projected demand in each year and the projected water purchases.

6.1 Purchased Water

The treated surface water component of the District's water supply is provided by the Santa Clara Valley Water District (SCVWD). SCVWD operates three separate surface water treatment plants (the Penitencia, Rinconada, and Santa Teresa plants) for its combined surface water supplies from local runoff. It also imports water from the Federal Central Valley Project, the State Water Project, and SFPUC's Regional Water System. Finished water is delivered to Los Altos Suburban from the Rinconada treatment plant through a large-diameter high pressure pipeline that runs through Cupertino and along Foothill Expressway. This pipeline is commonly referred to as the West Pipeline. This main also has branch lines that distribute water to Santa Clara and Mountain View ("distributaries").

The Los Altos Suburban District takes SCVWD water at four locations in the system. These connections are referred to as the "Tantau-Vallco", "Granger", "Farndon", and "Covington" turnouts. The Farndon and Granger turnouts are located directly on the West Pipeline, while the Tantau-Vallco turnout is located on the Santa Clara Distributary, and the Covington connection is located on the Mountain View Distributary. Each of these

turnouts is equipped with pressure and flow control devices that provide a seamless hydraulic transition between their respective delivery main and the Los Altos Suburban system. SCVWD disinfects the water delivered to Los Altos Suburban using a blend of chlorine and ammonia (chloramines).

When surface water supplies are plentiful, SCVWD authorizes the sale of "Non-Contract" water in order to facilitate conjunctive use storage of surplus supply in the groundwater aquifers in the region. Because there is usually a slight economic advantage to purchasing this "Non-Contract" water, the Los Altos Suburban District reduces its production of groundwater and increases the purchase of surface deliveries from SCVWD. When supplies are scarce, the SCVWD has imposed both voluntary and mandatory reductions in the overall use of water. Because surplus supplies are stored underground by SCVWD when available, during shortages the District increases groundwater production and reduces the direct purchase of water from SCVWD.

Because SCVWD replenishes the groundwater resources within its boundaries, it levies an assessment on the production of groundwater to finance this operation. During normal periods of supply, the groundwater pumping assessment is set such that the cost of pumping groundwater is essentially equal to the cost of directly purchasing water from SCVWD. Because it is unknown whether "Non-Contract" water will be available when the purchase water schedules are prepared, and because "Non-Contract" water is only available in the non-summer months between October and April of the next year, the scheduling of deliveries is set to maximize the delivery of purchased water in the summer and utilize groundwater production capacity to its fullest during all other periods. This scheduling pattern enables the District to take advantage of the economic incentive provided by the sale of "Non-Contract" water, in turn assisting SCVWD in accomplishing the goal of storing surplus supplies. SCVWD has scheduling restrictions regarding the purchase of direct deliveries. These restrictions currently limit the Peak Day deliveries to 180 percent of the average day delivery; the maximum monthly delivery cannot exceed fifteen percent of the annual scheduled delivery.

6.2 Groundwater

Cal Water has more than sufficient well capacity to meet the demands unserved by SCVWD purchases through 2040. As aging wells are taken out of service and replaced with new wells, the system’s total capacity is expected to only marginally increase.

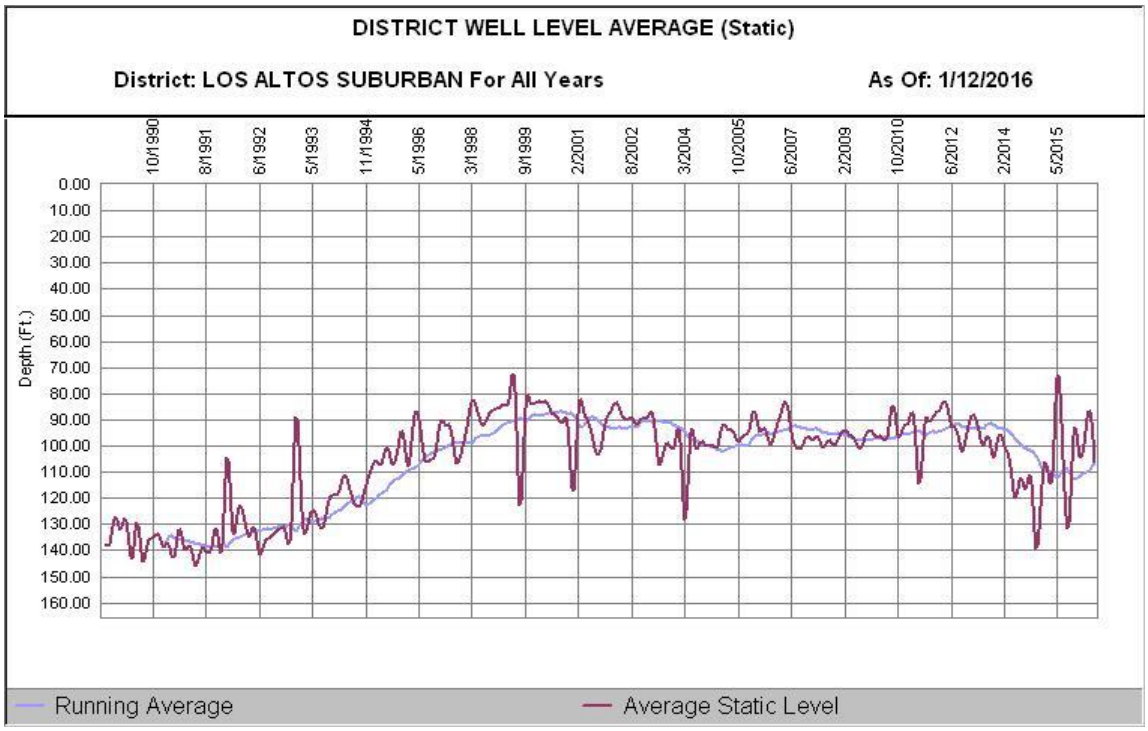
Maximum day demands, both current and projected, are supplied by deliveries of imported water from SCVWD. Production records show that average day demand reached a high of 14.19 MGD in 2004. The ten-year average through 2014 was 12.36

MGD.[8] The maximum day demand reached 28.72 MGD in 2001 with a ten-year average of 22.32 MGD. The 10-year average values result in a typical maximum day to average day ratio of 1.81. Historically, the District's distribution facilities have been able to deliver this level of demand.

Average static groundwater elevations in the District have remained relatively consistent since the SCVWD began its recharge activities. Over the period of record the level has fluctuated due to climatic conditions. As shown in Figure 6-1, the extended multi-year drought in the early 1990's caused a 40-foot decline in static groundwater elevation. Drought recovery began to become apparent shortly after in 1992, with an increase in the average static groundwater elevation to pre-drought levels. Elevations again declined in 2014-15.

[8] Note that the 10-year averages reflect demand constraints in several severe drought years.

Figure 6-1: District Well Level Average (Static)



6.2.1 Basin Description

As described in DWR Bulletin 118 California's Groundwater, the Los Altos Suburban District is located in the Santa Clara sub-basin of the Santa Clara Valley Groundwater Basin. The Santa Clara sub-basin occupies a structural trough parallel to the northwest trending Coast Ranges. The Diablo Range bounds it on the East and the Santa Cruz Mountains form the Western border of Santa Clara County to the groundwater divide near Morgan Hill. The dominant geo-hydrologic feature is a large inland valley. The valley is drained to the north by tributaries to the San Francisco Bay including Coyote Creek, the Guadalupe River, and Los Gatos Creek. Additional details of the basin are given in the DWR's Groundwater Bulletin 118[5].

6.2.2 Groundwater Management

Groundwater quality and quantity in the Los Altos Suburban District are actively managed by SCVWD. SCVWD updates its Groundwater Management Plan (GMP) periodically. The

[5] California's Ground Water Bulletin 118, 2003; San Francisco Bay Hydrologic Region; Santa Clara Valley Subbasin; Groundwater Basin Number: 2-9.02. http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf

most recent update was completed in 2012. A copy of the 2012 SCVWD Groundwater Management Plan is included in Appendix G. The GMP states:

Since the 1930s, the District's water supply strategy has been to maximize conjunctive use, the coordinated management of surface and groundwater supplies, to enhance water supply reliability. Local groundwater resources make up the foundation of the county's water supply, but they need to be augmented by the District's comprehensive water supply management activities in order to reliably meet the needs of county residents, businesses, agriculture and the environment. These activities include the managed recharge of imported and local supplies and in-lieu groundwater recharge through the provision of treated surface water, acquisition of supplemental water supplies, and water conservation and recycling. The District also has programs to protect, manage and sustain water resources.

Protecting groundwater resources is a key District mission as shown by District Board Supply Objective 2.1.1 in the 2012 GMP: "Aggressively protect groundwater from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and salt water intrusion."

Sustainable Groundwater Management Act

Background – On September 16, 2014, Governor Brown signed into law Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319 (AB-1739, SB-1168, and SB-1319). This three-bill legislative package is known collectively as the Sustainable Groundwater Management Act (SGMA). SGMA was amended in the later part of 2015 by Senate Bill 13, Senate Bill 226 and Assembly Bill 1390 to provide clarity to the original law and guidance on groundwater adjudications. This new legislation defines sustainable groundwater management as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results" [Water Code § 10721(u)]. The legislation defines "undesirable results" to be any of the following effects caused by groundwater conditions occurring throughout the basin [Water Code § 10721(w) (1-6)]:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply;
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality;
- Significant and unreasonable land subsidence;

- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The legislation provides for financial and enforcement tools to carry out effective local sustainable groundwater management through formation of Groundwater Sustainability Agencies (GSA's) consisting of local public agencies, water companies regulated by the CPUC and mutual water companies. The legislation requires that GSA's within High and Medium Priority basins under the California Statewide Groundwater Elevation Monitoring (CASGEM) program subject to critical conditions of overdraft prepare and submit a Groundwater Sustainability Plan (GSP) for the basin by January 31, 2020 [Water Code § 10720.7(a) (1)], and requires GSA's in all other groundwater basins designated as High or Medium Priority basins to prepare and submit a GSP by January 31, 2022 [Water Code § 10720.7 (a) (2)]. Following State approval, the basin would thereafter be managed under the GSP. The legislation does not require adjudicated basins to develop GSPs, but they are required to report their water use.

Intended Outcomes and Benefits – The key intended outcomes and benefits of SGMA are numerous, and include:

- Advancement in understanding and knowledge of the State's groundwater basins and their issues and challenges;
- Establishment of effective local governance to protect and manage groundwater basins;
- Management of regional water resources for regional self-sufficiency and drought resilience;
- Sustainable management of groundwater basins through the actions of GSA's, utilizing State assistance and intervention only when necessary;
- All groundwater basins in California are operated to maintain adequate protection to support the beneficial uses for the resource;
- Surface water and groundwater are managed as "a Single Resource" to sustain their interconnectivity, provide dry season base flow to interconnected streams, and support and promote long-term aquatic ecosystem health and vitality;
- A statewide framework for local groundwater management planning, including development of sustainable groundwater management best management practices and plans;

- Development of comprehensive and uniform water budgets, groundwater models, and engineering tools for effective management of groundwater basins;

- Improved coordination between land use and groundwater planning;

- Enforcement actions as needed by the SWRCB to achieve region-by-region sustainable groundwater management in accordance with the 2014 legislation.

To assist in attaining the above outcomes, the California Department of Water Resources (DWR) will provide GSA's with the technical and financial assistance necessary to sustainably manage their water resources. The benefits of these outcomes include:

- A reliable, safe and sustainable water supply to protect communities, farms, and the environment, and support a stable and growing economy;

- Elimination of long-term groundwater overdraft, an increase in groundwater storage, avoidance or minimization of subsidence, enhancement of water flows in stream systems, and prevention of future groundwater quality degradation.

Cal Water Position – Cal Water's groundwater basin philosophy continues to be to work collaboratively with all stakeholders in the basins where we operate and to do what is best for the groundwater basin including the sharing of burden(s) and benefits on an equitable basis with said stakeholders. Cal Water recognizes and deeply supports the goals, objectives, and intended outcomes of the SGMA. Moreover, the company recognizes the numerous challenges of the legislation along a variety of technical, legal, political, and financial/economic dimensions, particularly when the geographical diversity of the Company's service territory is considered. None-the-less, Cal Water intends to take an active role in the local and state-wide management of groundwater resources over the next 5-25+ years by fully supporting and participating in the principal edicts of SGMA. A number of specific steps that the Company intends to take with respect to this position and role include (among others):

- Outreach to public agencies to ensure that the Company's presence, rights and interests, as well as historical and current resource management concerns are honored/incorporated within the GSA and GSP formulation process(es);

- Outreach to applicable local and regulatory agencies to ensure that the Company is at full participation, while also meeting the requirements and expectations set forth by SGMA;

- The enhanced use of digital/electronic groundwater monitoring equipment and other new technology aimed at measuring withdrawal rates, pumping water levels, and key water quality parameters within the context of day-to-day operations;

- Full participation in the development of GSP's and formulation of groundwater models being constructed in basins where the Company has an operating presence;

- Full participation in individual and/or joint projects aimed at mitigating seawater intrusion and other "undesirable results";

- Inclusion of sound groundwater management principles and data in all applicable technical reports, studies, facility master plans, and urban water management plans (including this 2015 update), particularly as these undertakings relate or pertain to water resource adequacy and reliability;

- Inclusion of sound groundwater management principles and data in all general rate case (GRC) filings and grant applications to ensure that resource management objectives remain visible and central to Cal Water's long-term planning/budgeting efforts;

SGMA related information in the 2015 UWMP – The Urban Water Management Plans prepared by Cal Water over the past decade, including the 2015 update, already contain many of the elements required by SGMA and thus already serve as a road map toward the implementation of SGMA and the basin GSP. The UWMP addresses all water supply sources including groundwater. SGMA's specific concerns with groundwater are addressed as follows:

- Chapter 4 addresses Cal Water's historic and future customer growth and water demand in the basin.

- Chapter 6 addresses Cal Water's historic and future water supplies in the basin.

- Chapter 6 addresses the potential actions Cal Water will need to take to develop additional water supplies to maintain supply reliability.

- Chapter 6 discusses water quality and necessary actions to protect and decontaminate water supplies.

- Chapter 6 addresses supplementing water supplies with recycled water.

- Chapter 7 addresses the projected ability of the combined supply, including groundwater, to reliable serve customer demands under normal, single-dry-year and multiple-dry-year conditions.

6.2.3 Overdraft Conditions

Again, according to the GMP:

Local communities have relied on groundwater since the 1850s, when the first wells were drilled to supply water to residents, agriculture, and businesses. By the 1920s, far more water was being pumped than nature could replenish. This groundwater overdraft resulted in declining groundwater levels and land subsidence, the broad sagging of the land surface over many miles. Mountain View, Sunnyvale, Santa Clara, and north San Jose experienced permanent land subsidence, with the ground surface in downtown San Jose dropping about 13 feet over time. The Santa Clara Valley Water Conservation District, the precursor of today's District, was formed in 1929 by an act of the California legislature, with the mission of managing water resources to stop groundwater overdraft and land subsidence.

Significant inelastic subsidence was essentially halted by about 1970 through the District's expanded conjunctive use programs, which allowed artesian heads to recover substantially. Even with the managed recharge of local and imported water, groundwater alone cannot support this heavily urbanized area, and programs that reduce or offset groundwater pumping (like treated water deliveries and water conservation) are critical to avoid overdraft, additional permanent land subsidence, and salt water intrusion.

The Santa Clara Sub-basin has been identified as medium priority by DWR's groundwater prioritization process.

6.2.4 Historical Pumping

Table 6-1 shows the volumes pumped by Cal Water from the sub-basin over the past 5 years.

Table 6-1 Retail: Groundwater Volume Pumped (AF)

Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	Santa Clara Sub-basin	2,881	4,266	4,990	6,240	3,341
Total		**2,881**	**4,266**	**4,990**	**6,240**	**3,341**

6.3 Surface Water

The Los Altos Suburban District does not directly impound or divert local surface water to meet supply requirements. SCVWD local surface supplies are discussed above in Section 6.1.

6.4 Stormwater

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

6.5 Wastewater and Recycled Water

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 reducing potable supply needs by utilizing recycled water for appropriate uses (e.g., landscape, irrigation) now being served by potable water. The potential amount of recycled water that can be produced is proportional to the amount of wastewater that is generated by the District, and is discussed in the following sections.

6.5.1 Recycled Water Coordination

The following is a listing of the agencies that the Cal Water District relies on for wastewater collection, treatment and recycling:

- City of Palo Alto
- City of Los Altos
- City of Mountain View
- City of Sunnyvale

6.5.2 Wastewater Collection, Treatment, and Disposal

The City of Palo Alto is the administrator of the Palo Alto Regional Water Quality Control Plant. Palo Alto, Los Altos, Mountain View and their sub-partnering sewer agencies, East Palo Alto, Stanford University, and Los Altos Hills share in the proportionate costs of upkeep for the Palo Alto Regional Water Quality Control Plant.

Each city owns, operates, and maintains its own collection system. The Palo Alto Regional Water Quality Control Plant owns and maintains the wastewater treatment plant and the effluent line. The largest gravity line in the system is 72 inches in diameter. The majority of the wastewater is from residential use with approximately 20 percent of the flows being generated from industrial and commercial uses.

The City of Sunnyvale operates and maintains its sewer system consisting of 48 inch or smaller gravity sewers and three pumping stations from residential, commercial, and some industrial customers. The collected wastewater is discharged to trunk sewers owned and operated by the City and conveyed to the Sunnyvale Water Pollution Control Plant for treatment.

The Palo Alto Regional Water Quality Control Plant provides primary, secondary, and tertiary treatment. The tertiary treatment processes include fixed film reactors and dual media filters. The treatment plant has a capacity to treat 39 mgd but currently receives an average of 26 mgd from all of its customers. The disinfected effluent is discharged to

San Francisco Bay through an unnamed slough near the Palo Alto Airport. The Plant has the capacity to filter and disinfect 2 mgd of wastewater to the highest standards prescribed by Title 22 for unrestricted beneficial reuse. The reclaimed water is used to irrigate the municipal golf courses in Palo Alto and Mountain View as well as Greer Park in Palo Alto. The recycled water is also used by tanker trucks to provide dust control at construction sites, and for irrigation. In addition, up to 3.7 million gallons per month of reclaimed water is used during the off-season winter months to supply fresh water to a marsh southwest of the plant. The Regional Water Quality Control Plant reclamation program began in the late 1980s and continues today looking for new ways to reuse water. Currently, the Plant does not provide reclaimed water to any Cal Water service areas.

The Sunnyvale Water Pollution Control Plant provides wastewater service for the City of Sunnyvale. The wastewater at the treatment plant undergoes primary, secondary, and tertiary treatment followed by chlorination and dechlorination prior to disposal into the San Francisco Bay via the Guadalupe Slough. The Plant has a capacity to treat 29.5 mgd but currently receives 16.9 mgd average from the Plant's service area. The Plant currently supplies recycled water to meet a peak demand of 2 mgd of recycled water for landscaping and some industrial uses. However, the recycled water is provided to the City of Sunnyvale areas that are not in Cal Water's Los Altos service area.

Table 6-2 estimates the volume of wastewater collected from Los Altos Suburban District customers in 2015.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
Percentage of 2015 service area covered by wastewater collection system *(optional)*						
Percentage of 2015 service area population covered by wastewater collection system *(optional)*						
			Receiving Wastewater Treatment			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected in 2015 (AF)	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?
City of Los Altos	Estimated	3,895	City of Palo Alto	Palo Alto Regional Water Quality Control Plant	NO	
City of Sunnyvale	Estimated	2,532	City of Sunnyvale	Sunnyvale Water Pollution Control Plant	NO	
Total Wastewater Collected from Service Area in 2015:		**6,427**				

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

✓ 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?	Treat-ment Level	2015 Volumes			
							Waste water Treated	Discharged Treated Waste water	Recycled Within Service Area	Recycled Outside of Service Area
						Total				

6.5.3 Recycled Water System

Use of recycled water reduces use of SCVWD water and pumping from Cal Water wells. This helps to increase groundwater storage and the sustainability of both supply sources. Currently, no recycled is used in the Los Altos District. However, Cal Water has been in negotiations with the City of Sunnyvale, SCVWD and Apple to connect the Sunnyvale recycled water system to a new recycled pipe system in Cupertino that will convey water to the Apple Campus 2 site. The plan is to construct a recycled water transmission line to the District to serve not only the Apple Campus 2 site, but also possible other sites in Cupertino or the District.

According to the SCVWD Wolfe Road Feasibility Planning Study Report (December 2014), the transmission facilities project will be delivering recycled water by the end of 2016. City of Sunnyvale recycled water would be conveyed through SCVWD transmission facilities to the Los Altos District service area in the City of Cupertino. The proposed project may have the capacity to convey up to 1,095 AFY. Apple Campus 2 will initially receive 176 AFY. The remaining conveyance capacity would be reserved for possible future increased recycled water uses at Apple and other sites in the area.

In 2012, SCVWD constructed and currently operates an 8 mgd advanced water purification plant (uses micro-filtration, reverse osmosis and ultra-violet disinfection processes) adjacent to the San Jose/Santa Clara Water Pollution Control plant, which provides secondary effluent as source water.

Currently, treated water from the San Jose/Santa Clara Water Pollution Control plant is blended with treated water from the wastewater plant and is used for non-potable irrigation. SCVWD is currently planning to expand the recycled water treatment plant to 32 mgd and construct transmission facilities to convey treated water to recharge basins for replenishing groundwater supply for drinking water purposes.

6.5.4 Recycled Water Beneficial Uses

Use of recycled water at the Apple Campus 2 site is projected to ramp up to 261 AFY. As described above, the proposed recycling project has a capacity much larger than that. Cal Water will work with other agencies to encourage other customers to utilize this capacity.

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area (AF)									
	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 Agency Producing (Treating) the Recycled Water:			**City of Sunnyvale**						
Name of Agency Operating the Recycled Water Distribution System:			**Santa Clara**						
Supplemental Water Added in 2015									
Source of 2015 Supplemental Water									
Beneficial Use Type		General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation									
Landscape irrigation (exc golf courses)			Tertiary	0	220	261	261	261	
Golf course irrigation									
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)									
Surface water augmentation (IPR)									
Direct potable reuse									
Other	*Type of Use*								
			Total:	**0**	**220**	**261**	**261**	**261**	
IPR - Indirect Potable Reuse									

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual		
✓	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 actual use
Agricultural irrigation		
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Total		

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

As discussed above, Cal Water is working with the City of Sunnyvale, SCVWD and Apple to connect the Sunnyvale recycled water system to a new recycled pipe system in Cupertino

Cal Water's supply portfolio in other districts already includes recycled water; elsewhere, the Company is participating in studies of the possibility of adding this supply source. Cal Water is eager to expand its portfolio to provide recycled water to its customers wherever possible, and to form partnerships with other agencies and jurisdictions to accomplish this. Any such project must be economically feasible. Approval of such an investment by the CPUC is contingent on a demonstration that it is beneficial to ratepayers.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (AF)
Constructing new recycled water delivery system	Cal Water has been in negotiations with the City of Sunnyvale, SCVWD and Apple to connect the Sunnyvale recycled water system to a new recycled pipe system in Cupertino that will convey water to the Apple Campus 2 site as well as other potential sites in the vicinity.	2016	176
		Total	**176**

6.6 Desalinated Water Opportunities

A desalination plant could be used to provide potable water to Los Altos Suburban and several of Cal Water's Districts located on the San Francisco Peninsula. Cal Water has developed an Integrated Long Term Water Supply Plan for its Peninsula Districts. This Plan considered the needs of the Los Altos Suburban District when analyzing the feasibility of desalinated water in its other service districts. Because the supply of both groundwater and treated surface water provided by SCVWD is adequate, and because the cost is not competitive with these supplies, desalinated water is unlikely to become a supply source for the Los Altos Suburban District in the near future.

Cal Water could also partner with other neighboring cities or SCVWD to develop a desalinated supply if necessary. However, at this time there are no plans to augment supply with desalinated water.

SCVWD, along with Contra Costa Water District, San Francisco Public Utilities Commission, East Bay Municipal Utility District, and Zone 7 Water Agency, are working together to investigate a Bay Area Regional Desalination Project (BARDP) as a means of diversifying their water supply portfolios and increasing supply reliability. As a retail agency of SCVWD, Cal Water's Los Altos Suburban District would benefit from this alternative supply. To date, the agencies have completed a number of feasibility studies on hydrologic modeling, energy use, and potential habitat impacts of the Project. The next step is to explore how the water supply source would fit into the agencies' supply and demand scenarios through 2030. There is no timeline yet determined for design, construction and permitting of the project.

6.7 Exchanges or Transfers

Cal Water relies on SCVWD to maintain reliable supplies of groundwater and imported water. To date the Los Altos Suburban District has not experienced supply shortages or needed to acquire additional sources of supply. Cal Water also does not have any surface water rights in Los Altos that might be valuable to other agencies. Any transfer or exchange would likely be in the form of a short term transfer for emergency purposes.

6.7.1 Exchanges

No exchanges are planned for the District in the timeframe of this plan.

6.7.2 Transfers

No transfers are planned for the District in the timeframe of this plan.

6.7.3 Emergency Interties

Cal Water has eleven emergency interties with the following Cities and Agencies:

- San Jose Water Company 1 connection
- City of Santa Clara 1 connection
- City of Sunnyvale 6 connections
- Purissima Water District 3 connections

6.8 Future Water Projects

Other than the Apple 2 Campus project described above, Cal Water does not have any plans to add new supplies to the District in the near future. In general, as aging wells are taken out of service, replacement wells will be drilled; however, the system's total capacity is not expected to increase significantly.

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
	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. LOCATION OF THE NARRATIVE: Sections 6.5, 6.6					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
		If Yes, Agency Name				*This may be a range*

6.9 Summary of Existing and Planned Sources of Water

Table 6-8 shows the actual volumes of purchased water and groundwater production for calendar year 2015. Table 6-9 shows the projected supply volumes through 2040. Consistent with the SCVWD projections that are discussed in Chapter 7, the supplies will be sufficient to serve the normal year demands of all SCVWD customers through 2040.

Table 6-8 Retail: Water Supplies — Actual (AF)

Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume	Water Quality	Total Right or Safe Yield (optional)
Purchased or Imported Water	Water purchased from the Santa Clara Valley Water District (SCVWD)	6,848	Drinking water	
Groundwater	District-operated wells in the Santa Clara Sub-basin	3,341	Drinking water	
Total		**10,189**		

Table 6-9 Retail: Water Supplies — Projected (AF)

Water Supply	Projected Water Supply *Report To the Extent Practicable*									
	2020		**2025**		**2030**		**2035**		**2040** *(opt)*	
	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Purchased or Imported Water	10,332		10,516		10,708		10,910		11,121	
Groundwater	3,824		3,674		3,674		3,570		3,552	
Recycled Water	220		261		261		261		261	
Total	**14,376**		**14,451**		**14,451**		**14,741**		**14,934**	

6.10 Climate Change Impacts to Supply

Cal Water recently completed an initial study of climate change impacts for a sample of its districts, including Los Altos Suburban.[9] The sample 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. The study was undertaken because it is critical for Cal Water to gain a better understanding of the potential impacts of climate change on the availability of its diverse supplies. The 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 initial study represents 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 was the purpose of the study.

Changes in climate can affect the availability of local groundwater and surface water supplies, as well as purchased imported supplies. This study separately addressed the impacts on each of these for each sample district. It relied on the best available projections of changes in climate (temperature and precipitation) through the end of the century, and then used the climate projections to examine how surface water flows and groundwater recharge rates may change. The study generally relied on studies done by or data provided by wholesale suppliers.

The study results provide an integrated view of how projected climate changes may affect water supply availability for Cal Water's service districts, and represent a first step in integrating potential future climate change impacts into Cal Water's ongoing supply planning.

6.10.1 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.

[9] California Water Service Company, *Potential Climate Change Impacts on the Water Supplies of California Water Service*. January 2016.

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.

6.10.2 Impacts of Climate Change on Water Supplies

Since 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. Based on the breakdown of district production among the supply sources, Table 6-10 shows the ranges of projected overall climate change impacts on available supply, relative to the historic average.

Supply reductions due to climate change are projected to be between 10% and 28% for these districts by the end of the century.

Table 6-10 Projected Changes in Average 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%

6.10.3 Next Steps and Key Conclusions

Possible next steps for Cal Water's study of climate change include:

- Methodological enhancements to reduce some of the uncertainties in the results;
- Development and acquisition of better and more complete data;
- Extending the 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.

Three critical messages emerged from the study:

- 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.

Chapter 7
Water Supply Reliability Assessment

This chapter addresses the reliability of the Los Altos District's water supplies. Assessment of water supply reliability is complex and dependent upon a number of factors, such as the number of water sources, regulatory and legal constraints, hydrological and environmental conditions, climate change, and expected growth, among others. Cal Water has made its best determination of future water supply reliability for the Los Altos District.

7.1 Constraints on Water Sources

Constraints on District supplies are governed by SCVWD, which jointly manages its purchases, local surface water, and groundwater to determine the supplies available to its retailers. As explained in more detail below, the entries in Tables 7-2 through 7-4 are based on data provided by SCVWD from its draft 2015 UWMP.

In addition to water quantity constraints, water quality is the other major dimension that could constrain supply. Historically, Cal water has been able to meet all state and federal water quality regulations. Nitrate is the primary chemical of concern in the Los Altos District. However, this contaminant is not expected to cause significant problems with the quality of water delivered to Cal Water's customers. Wells testing above MCLs for nitrates or any other compounds are either taken out of service or are treated to ensure compliance with all water quality regulations.

The drinking water delivered to customers in the Los Altos District meets or surpasses all federal and state regulations. The U.S. Environmental Protection Agency as authorized by the Federal Safe Drinking Water Act of 1974 sets drinking water standards. A state can either adopt the USEPA standard or set state standards that are more stringent than those set by the federal government.

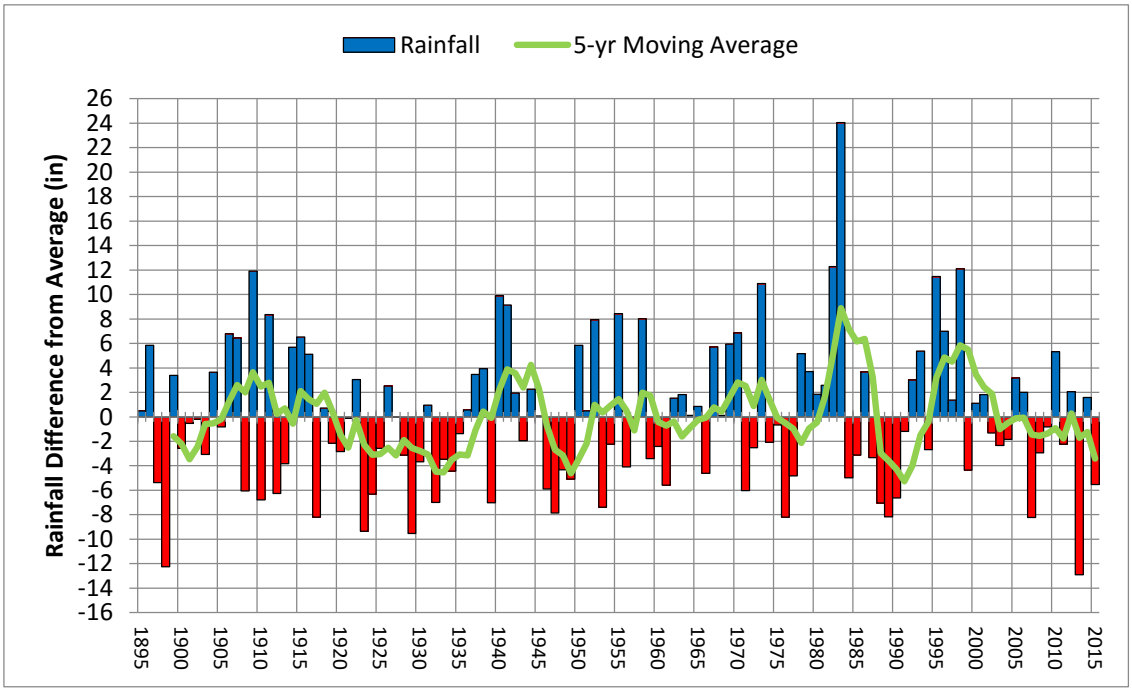
There are two general types of drinking water standards, Primary and Secondary. Primary Standards are designed to protect public health by establishing Maximum Contamination Levels (MCL) for substances in water that may be harmful to humans. MCLs are established very conservatively for each contaminant and are generally based on health effects which may occur if a person were to drink three liters of the water per day for 70 years. Secondary Standards are based on the aesthetic qualities of the water such as taste, odor, color, and certain mineral content. These standards, established by the State of California, specify limits for substances that may affect consumer acceptance of the water.

The water distributed in the District is a blend of surface water from SCVWD, which uses chloramines as a primary disinfectant, and untreated local groundwater. This blending has resulted in a decrease in the disinfectant residual and an increase of possible nitrification. Cal Water is in the process of adding chlorine and ammonia feed facilities to some of its well stations to increase the disinfectant residual in the distribution system.

7.2 Reliability by Type of Year

Figure 7-1 compares annual rainfall to the historic average (16.44 inches). A normal hydrologic year occurred in 1927 when precipitation was approximately 0.2 percent below the historic average for the period from 1903 to 2015. The single-dry and multi-dry base years for drought planning shown in Table 7-1 are based on the designations of SCVWD.

Figure 7-1. Deviation of Annual Rainfall from Long-Term Average



SOURCE: PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu, created Feb 2016

Table 7-1 Retail: Basis of Water Year Data (AF)			
Year Type	Base Year	Available supplies if year type repeats Agency may complete these columns for volume only, percent only, or both	
		Volume available	% of avg supply
Average Year	1927	14,872	100%
Single-Dry Year	1977	15,624	
Multiple-Dry Years 1st Year	2013	13,015	
Multiple-Dry Years 2nd Year	2014	9,660	
Multiple-Dry Years 3rd Year	2015	11,735	
NOTES: Available volumes are the maximum volumes across all forecast years in Tables 7-2, 7-3, and 7-4.			

7.3 Supply and Demand Assessment

Water supply and demand patterns change during normal, single dry, and multiple dry years. Cal Water has relied on the demand modeling described in Chapter 4 to forecast demands for normal, single dry and multiple dry years.

Tables 7-A, 7-B, and 7-C are reproduced from the SCVWD draft 2015 UWMP,[10] and show respectively the average, single-dry, and multi-dry year available supplies, demands, and surpluses or shortages. These three tables include all supplies available to the Los Altos District, including groundwater, which is managed by SCVWD.[11] The projected District supply totals in Tables 7-2 through 7-4 assume that the District's SCVWD supplies would experience the percentage shortages shown in Tables 7-A, 7-B, and 7-C. Were such shortages to arise, Cal Water would implement the relevant provisions of the Water Shortage Contingency Plan discussed below in Chapter 8.

(This analysis excludes usage reductions that are not directly a function of Cal Water or SCVWD supplies, but are externally-imposed by other entities, such as the 2015 state-mandated cutbacks.)

[10] Update distributed by SCVWD May 17, 2016.

[11] Projected District recycled water supplies are not included in these tables.

Table 7-A. SCVWD Average Supplies and Demands (AF)					
Supplies	2020	2025	2030	2035	2040
Natural Groundwater Recharge	60,900	60,900	60,900	60,900	61,000
Local Surface Water	78,600	85,600	89,700	92,400	93,400
Recycled Water	23,300	28,500	31,900	33,100	33,500
Potable Reuse	-	20,200	20,200	20,200	20,200
San Francisco Public Utilities Commission	56,400	57,600	57,800	58,000	58,500
CVP and SWP Allocations	171,000	175,300	175,300	175,300	175,300
Sum	**390,200**	**428,100**	**435,800**	**439,900**	**441,900**
Demands	**371,200**	**391,300**	**408,600**	**425,800**	**435,100**
Difference	**19,000**	**36,800**	**27,200**	**14,100**	**6,800**
Percent Shortage	**--**	**--**	**--**	**--**	**--**

Table 7-B. Single Dry Year Supplies and Demands (AF)					
Supplies	2020	2025	2030	2035	2040
Natural Groundwater Recharge	47,500	47,500	47,500	47,500	47,500
Local Surface Water	6,000	16,600	18,600	19,100	19,000
Recycled Water	23,300	28,500	31,900	33,100	33,500
Potable Reuse	-	20,200	20,200	20,200	20,200
San Francisco Public Utilities Commission	55,900	57,100	57,200	57,500	57,900
CVP and SWP Allocations	73,600	73,600	73,600	73,600	73,600
Transfers	6,000	12,000	12,000	12,000	12,000
Reserves	158,300	135,400	147,000	162,100	144,800
Supply Total	**370,700**	**390,800**	**407,900**	**425,000**	**408,500**
Demands	**370,600**	**390,800**	**407,900**	**425,000**	**434,300**
Difference	**0**	**0**	**0**	**0**	**-25,800**
Percent Shortage	**--**	**--**	**--**	**--**	**6%**

Table 7-C. Multiple Dry Year Supplies and Demands (AF)						
		2020	2025	2030	2035	2040
First Year (2013)	Supply Totals	370,800	391,000	408,200	425,200	434,700
	Demand Totals	370,800	391,000	408,200	425,200	434,700
	Difference	--	--	--	--	--
	Percent Shortage	--	--	--	--	--
Second Year (2014)	Supply Totals[1]	330,900	389,300	377,600	363,200	354,900
	Demand Totals	370,600	390,900	407,900	424,800	434,300
	Difference	**-39,700**	**-1,600**	**-30,300**	**-61,600**	**-79,400**
	Percent Shortage	**11%**	**0%**	**7%**	**15%**	**18%**
Third Year (2015)	Supply Totals[1]	257,500	331,200	307,200	275,800	256,800
	Demand Totals	370,500	390,700	407,800	424,700	434,100
	Difference	**-113,000**	**-59,500**	**-100,600**	**-148,900**	**-177,300**
	Percent Shortage	**30%**	**15%**	**25%**	**35%**	**41%**

Table 7-2 shows the projected supply and demand totals for a normal year. The supply totals match those in Table 6-9; the demand totals match Table 4-3.

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals (*autofill from Table 6-9)*	14,376	14,451	14,579	14,741	14,934
Demand totals *(autofill from Table 4-3)*	14,376	14,451	14,579	14,741	14,934
Difference	**0**	**0**	**0**	**0**	**0**

Table 7-3 shows the projected supply and demand totals for the single dry year

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	15,275	15,312	15,450	15,624	14,960
Demand totals	15,275	15,312	15,450	15,624	15,832
Difference	**0**	**0**	**0**	**0**	**-872**

Table 7-4 shows the projected supply and demand totals for the multiple dry years. As described above, this table is based on Table 7-C, which shows some potentially large future-year SCVWD shortages in extended droughts.

SCVWD points out that these results are based on current supply and infrastructure:

The District plans to update its Water Master Plan in 2017. As part of the planning process, the District will evaluate supply projects and programs to minimize the need to call for water use reductions greater than 10 percent.

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	15,275	15,312	15,450	15,624	15,832
	Demand totals	15,275	15,312	15,450	15,624	15,832
	Difference	**0**	**0**	**0**	**0**	**0**
Second year	Supply totals	12,450	13,941	13,062	12,185	11,792
	Demand totals	13,966	13,999	14,126	14,285	14,475
	Difference	**-1,516**	**-58**	**-1,064**	**-2,100**	**-2,683**
Third year	Supply totals	10,691	12,884	11,648	10,274	9,563
	Demand totals	15,009	15,045	15,180	15,351	15,556
	Difference	**-4,318**	**-2,161**	**-3,532**	**-5,077**	**-5,993**

7.4 Regional Supply Reliability

Enhanced groundwater management and regional water management and coordination is actively directed by SCVWD. SCVWD updates its Groundwater Management Plan (GMP) periodically. The most recent update was completed in 2012. Key elements of the GMP are described in Chapter 6.

Also as described in Chapter 6, Cal Water is partnering with other agencies to bring recycled water into the District to service the Apple Campus. Other deliveries points are being investigated. Bringing in recycled water will help reduce District potable demand and thereby reduce reliance on imported supplies.

Cal Water also has its own aggressive conservation program that has 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 current 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. A copy of the Conservation Master Plan is provided in Appendix L.

Cal Water also monitors and supports the goals of the Bay Area IRWMP. These goals include:

- Promote environmental, economic and social sustainability
- Improve water supply reliability and quality
- Protect and improve watershed health and function and Bay water quality
- Improve regional flood management
- Create, protect, enhance, and maintain environmental resources and habitat

Chapter 8
Water Shortage Contingency Planning

This chapter describes the water shortage contingency plan for the Los Altos Suburban District. The water shortage contingency plan includes the stages of response to a water shortage, such as a drought, that occur over a period of time, as well as catastrophic supply interruptions which occur suddenly. The primary objective of the water shortage contingency plan 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.

Rule 14.1, as filed with the California Public Utilities Commission (CPUC), serves as Cal Water's Water Shortage Contingency Plan (WSCP) and includes Mandatory Staged Restrictions of Water Use. In the event that more stringent measures are required, Cal Water may request the addition of Schedule 14.1 which includes Staged Mandatory Water Use Reductions.

On April 1, 2016, Cal Water filed its current Schedule 14.1 with the California Public Utilities Commission (CPUC).[12] The Schedule lays out the staged mandatory reductions and drought surcharges associated with Cal Water's Water Shortage Contingency Plan. 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 the Water Shortage Contingency Plan provided in Rule 14.1. The information presented in this chapter, 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 requiring statewide cutbacks to address the unprecedented drought.

8.1 Stages of Action

Table 8-1 defines the four stages of action in Cal Water's WSCP.

[12] Schedule 14.1, along with the underlying Cal Water Rule 14.1 are included as Appendix J.

Table 8-1 Retail: Stages of WSCP		
Stage	Complete One or Both	
	Percent Supply Reduction[1]	Water Supply Condition
	numerical value as percent	*narrative description*
1	Up to 10%	Minimal shortage
2	Up to 20%	Moderate shortage
3	Up to 35%	Severe shortage
4	Greater than 35%	Critical shortage
[1] One stage in the WSCP must address a water shortage of 50%.		

8.2 Prohibitions on End Uses

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; and,

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.

Restrictions of water use by Stage of the Water Shortage Contingency Plan are included in Table 8-2.

Table 8-2 Retail: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
1	Landscape - Limit landscape irrigation to specific days	Limited to no more than 3 days per week	Yes
1	Landscape - Limit landscape irrigation to specific times	Limited to 8 am and 6pm	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Must be repaired within 5 business days	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
1	Landscape - Other landscape restriction or prohibition	Prohibit application of potable water to outdoor landscapes within 48 hours of measurable rainfall.	Yes
1	Other - Require automatic shut off hoses		Yes
1	Other - Prohibit use of potable water for washing hard surfaces		Yes
1	Other	Limits filling ornamental lakes or ponds; prohibit use of potable water in a water feature except where the water is recirculated	Yes
2	Landscape - Limit landscape irrigation to specific days	Limited to no more than 3 days per week	Yes
2	Landscape - Limit landscape irrigation to specific times	Limited to 8 am and 6pm	Yes
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Must be repaired within 3 business days	Yes
2	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
2	Landscape - Other landscape restriction or prohibition	Prohibits irrigation of ornamental turf on public street medians with potable water; prohibit application of potable water to outdoor	Yes

Table 8-2 Retail: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
		landscapes within 48 hours of measurable rainfall.	
2	CII - Lodging establishment must offer opt out of linen service		Yes
2	CII - Restaurants may only serve water upon request		Yes
2	Other - Require automatic shut off hoses		Yes
2	Other - Prohibit use of potable water for washing hard surfaces		Yes
2	Other	Limits filling ornamental lakes or ponds; prohibit use of potable water in a water feature except where the water is recirculated	Yes
3	Landscape - Limit landscape irrigation to specific days	Limited to no more than 2 days per week	Yes
3	Landscape - Limit landscape irrigation to specific times	Limited to 8 am and 6pm	Yes
3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Must be repaired within 2 business days	Yes
3	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
3	Landscape - Other landscape restriction or prohibition	Prohibits irrigation of ornamental turf on public street medians with potable water; prohibit application of potable water to outdoor landscapes within 48 hours of measurable rainfall.	Yes
3	CII - Lodging establishment must offer opt out of linen service		Yes
3	CII - Restaurants may only serve water upon request		Yes

Table 8-2 Retail: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
3	Other - Require automatic shut off hoses		Yes
3	Other - Prohibit use of potable water for washing hard surfaces	Prohibits use of potable water for street cleaning with trucks except for initial wash-down for construction purposes if street sweeping is not feasible	Yes
3	Other	Limits filling ornamental lakes or ponds; prohibit use of potable water in a water feature except where the water is recirculated	Yes
3	Other - Prohibit use of potable water for construction and dust control	Prohibited unless no other method or source of water can be used	Yes
4	Landscape - Prohibit all landscape irrigation	Prohibited except with hand-held bucket nozzle to maintain trees and shrubs.	Yes
4	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Must be repaired within 1 business day	Yes
4	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
4	CII - Lodging establishment must offer opt out of linen service		Yes
4	CII - Restaurants may only serve water upon request		Yes
4	Other - Require automatic shut off hoses		Yes
4	Other - Prohibit use of potable water for washing hard surfaces	Prohibits use of potable water for street cleaning with trucks	Yes
4	Other	Limits filling ornamental lakes or ponds; prohibit use of potable water in a	Yes

Table 8-2 Retail: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
		water feature except where the water is recirculated	
4	Other - Prohibit use of potable water for construction and dust control	No exceptions	Yes

8.3 Penalties, Charges, Other Enforcement of Prohibitions

In accordance with Rule 14.1, Cal Water is authorized to take the following actions to enforce restrictions of water use that are in effect:

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.

If Schedule 14.1 is implemented, Cal Water is 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. 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.

DROUGHT SURCHARGES

Cal Water may elect to implement actions such as water budgets with associated surcharges through the implementation of Schedule 14.1. An example of such a program is included in Appendix J.

8.4 Consumption Reduction Methods by Agencies

Table 8-3 Retail: Stages of WSCP - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference *(optional)*
2	Expand Public Information Campaign	
2	Offer Water Use Surveys	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
2	Provide Rebates or Giveaways of Plumbing Fixtures and Devices	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
2	Provide Rebates for Landscape Irrigation Efficiency	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
2	Decrease Line Flushing	
2	Reduce System Water Loss	

Table 8-3 Retail: Stages of WSCP - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference *(optional)*
2	Increase Water Waste Patrols	
2	Other	Mandatory water budgets and banking--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.
2	Implement or Modify Drought Rate Structure or Surcharge	Drought surcharges charged to customers for each unit of water used over the established water budget for the billing period. For Stage 2 surcharges are two times the highest residential tier rate, with exceptions discussed in Section 8.3
3	Expand Public Information Campaign	
3	Offer Water Use Surveys	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
3	Provide Rebates or Giveaways of Plumbing Fixtures and Devices	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
3	Provide Rebates for Landscape Irrigation Efficiency	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
3	Decrease Line Flushing	
3	Reduce System Water Loss	
3	Increase Water Waste Patrols	
3	Other	Mandatory water budgets and banking
3	Implement or Modify Drought Rate Structure or Surcharge	Drought surcharges charged to customers for each unit of water used over the established water budget for the billing period.
4	Expand Public Information Campaign	
4	Offer Water Use Surveys	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
4	Provide Rebates or Giveaways of Plumbing Fixtures and Devices	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.

Table 8-3 Retail: Stages of WSCP - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference *(optional)*
4	Provide Rebates for Landscape Irrigation Efficiency	Offered as part of standard conservation program. Will expand as needed to achieve additional savings.
4	Decrease Line Flushing	
4	Reduce System Water Loss	
4	Increase Water Waste Patrols	
4	Other	Mandatory water budgets and banking
4	Other	Mandatory water budgets and banking
4	Implement or Modify Drought Rate Structure or Surcharge	Drought surcharges charged to customers for each unit of water used over the established water budget for the billing period.
NOTES: The actions included may be implemented through a combination of Rule 14.1 and Schedule 14.1 and would be evaluated based on specific need.		

8.5 Determining Water Shortage Reductions

All customers in the District are metered. The metered demands will be used to monitor reductions that result from actions taken by Cal Water when implementing its WSCP.

8.6 Revenue and Expenditure Impacts

In 2008 the CPUC allowed for 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.

During the current drought, the CPUC authorized a memorandum account through Resolution W-4976 to track incremental drought-related costs and waste of water penalties which may be recovered through rates if deemed appropriate by the Commission.

8.7 Resolution or Ordinance

Cal Water is an investor-owned water utility that is regulated by the California Public Utilities Commission (CPUC). As such, it does not have the authority to adopt resolutions

or ordinances. As described above, Rule 14.1, as filed with the California Public Utilities Commission (CPUC), serves as Cal Water's Water Shortage Contingency Plan and includes Mandatory Staged Restrictions of Water Use. In the event that more stringent measures are required, Cal Water may request the addition of Schedule 14.1 which includes Staged Mandatory Water Use Reductions. Cal Water will work with local planning and enforcement departments to ensure consistency with local resolutions and ordinances.

8.8 Catastrophic Supply Interruption

Cal Water has an Emergency Response Plan (ERP) in place that coordinates the overall company response to a disaster in any or all of its districts. In addition, the ERP requires each District to have a local disaster plan that coordinates emergency responses with other agencies in the area.

Cal Water also inspects its facilities annually for earthquake safety. To prevent loss of these facilities during an earthquake, auxiliary generators and improvements to the water storage facilities have been installed as part of Cal Water's annual budgeting and improvement process.

During an emergency, the District can transfer water through five interconnections to or from the neighboring water systems. These interconnections can be used to help offset the impact of interrupted service to District customers by suppling either imported water or pumped groundwater.

During a regional power outage, SCVWD will be able to provide a supply of imported water from their Rinconada Treatment Plant at normal pressures due to their backup power generators. Cal Water has backup power generators at three booster pump sites and can supply a mix of imported water and well water until storage tanks are emptied.

Cal Water has backup generators installed at key stations throughout the distribution system in order to provide water to nearly all zones in the event of a regional power outage. There are some pressure zones that currently do not have permanently installed backup power. For these systems, there are pressurized tanks that maintain pressure for a short duration, and portable boosters available that can be connected to maintain water supply to those zones.

8.9 Minimum Supply Next Three Years

Table 8-4 provides estimates of total supply volumes that would be produced if the hydrology of the multi-year drought period discussed in Chapter 7 were to occur in the immediate future. These volumes are equal to the projected 2020 supplies in Table 7-4.

Table 8-4 Retail: Minimum Supply Next Three Years (AF)			
	2016	2017	2018
Available Water Supply	12,526	8,938	11,107

Chapter 9
Demand Management Measures

This chapter provides a summary of past and planned demand management measure (DMM) implementation in the Los Altos Suburban District, as well as an overview of the expected water savings and projected compliance with the Water Conservation Act of 2009 (SB X7-7).

This chapter contains the following sections:

9.1 Demand Management Measures for Wholesale Agencies

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

9.2 Demand Management Measures for Retail Agencies

Cal Water centrally administers its conservation programs for its 24 districts. For purposes of this section, these programs have been grouped in accordance with the DMM categories in Section 10631(f) of the UWMP Act. These categories are:

(i) Water waste prevention ordinances
(ii) Metering
(iii) Conservation pricing
(iv) Public education and outreach
(v) Distribution system water loss management
(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

Because of its investor owned status Cal Water enforcement of water use restrictions is authorized by the CPUC through Rule 14.1 or Schedule 14.1. Restrictions may also be regulated by ordinances passed by the local governments in each community served. Cal Water has worked with municipalities to pass ordinances and coordinate activities. Cal Water will continue this effort on an ongoing basis. In the Los Altos Suburban District the Cities of Cupertino, Mountain View, and Sunnyvale have all passed water conservation ordinances, which are included in Appendix J.

Due to worsening drought conditions, Cal Water filed Schedule 14.1 with the CPUC in the spring of 2015 which went into effect on June 1, 2015. Cal Water's Schedule 14.1 filing, which applies to both residential and non-residential customers, is responsive to Governor Brown's emergency drought declaration and executive order requiring a statewide 25% reduction in urban potable water use. It also complies with regulations adopted by the State Water Resources Control Board (State Board) and the CPUC to achieve that reduction by the end of February 2016. Schedule 14.1 puts measures in place to enable Cal Water to enforce the water-use prohibitions set by the State Board, including:

- Applying water to outdoor landscapes that causes runoff onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures
- Using a hose to wash motor vehicles unless the hose is fitted with a shut-off nozzle or device that causes it to cease dispensing water immediately when not in use
- Applying water to driveways and sidewalks
- Using water in a fountain or other decorative water feature, except where the water is part of a recirculating system
- Applying water to outdoor landscapes during and within 48 hours after measurable rainfall
- Using potable water to irrigate outside of new construction without drip or microspray systems
- Using potable water on street medians
- Filling or refilling ornamental lakes or ponds except to sustain existing aquatic life

Additionally, Schedule 14.1 requires that:

- Customers must fix leaks within their control within five business days of notification
- Hotel/motel operators must provide option to not have towels or linens laundered daily during a guest's stay, and must provide clear notice of this option in easy-to-understand language

- Restaurants and other eating and drinking establishments may only serve drinking water upon request

With the approval of the Schedule 14.1 filing, beginning June 1, 2015, individual customers in each Cal Water district were provided water budgets based upon their water use each month in 2013 minus the state-mandated reduction for the Los Altos Suburban District of 32%. If a customer used less than his or her water budget, the unused water was carried forward, similar to rollover minutes on a cell phone plan. Water used in excess of the monthly budget was subject to a drought surcharge. The surcharge was discounted for customers on Cal Water's Low-Income Rate Assistance (LIRA) program. To help with compliance, the customer's monthly bill showed his or her water budget for the following month. Customers' water use history back to 2011 and their water budgets were also available online beginning in June of 2015.

Cal Water's Schedule 14.1 filing is included as Appendix J of this UWMP.

9.2.2 Metering

All service connections within the Los Altos Suburban District are metered. Meters are read monthly and routinely maintained and calibrated. Customers are billed monthly based on their metered water use.

Cal Water is also piloting automatic meter reading (AMR) and advanced metering infrastructure (AMI) in several of its districts. AMI may be used by Cal Water in the future to detect and alert households of leaks and other possible problems as well as to provide customers with tailored water use information to help them use water more efficiently.

9.2.3 Conservation pricing

As an investor owned utility, Cal Water rates and charges are reviewed and authorized by the CPUC every three years. Starting in 2008 Cal Water adopted tiered rate designs for single family residential service. Uniform volumetric rate designs are employed by Cal Water for other water service classes. Current volumetric rates by class of service within Los Altos Suburban District are provided in Table 9-1.

Table 9-1: Volumetric Water Rates by Class of Service ($/CCF)

Class of Service	Tier 1 (1-10 ccf)	Tier 2 (11-27 ccf)	Tier 3 (28+ ccf)	All units of water
Single Family	$3.69	$3.93	$4.71	
Non Residential				$4.06

Per the Memorandum of Understanding Regarding Urban Water Conservation in

California (MOU), conservation pricing provides economic incentives to customers to use water efficiently via a volumetric water rate. The MOU considers uniform, seasonal, tiered (block), and allocation-based rate designs as each being potentially consistent with conservation pricing, provided that either (1) 70% or more of total annual revenue is derived from the volumetric component of the rate design or (2) the proportion of total revenue from the volumetric component of the rate design equals or exceeds the long-run incremental cost of providing water service, or (3) the utility's metering technology, rate structure, and customer communication programs satisfy various requirements specified by the MOU.

The Los Altos Suburban District's rate structure complies with Option 1 of the Urban MOU's definition of conservation pricing. Urban MOU BMP compliance reports are provided in Appendix L.

9.2.4 Public Education and Outreach

Cal Water's public outreach program is divided into four components, as follows:

Residential Customer Assistance – This category provides tailored assistance to residential customers through home water surveys and monthly water use reports. It provides assistance to residential customers wanting to reduce their indoor and outdoor water uses. While available to all residential customers, marketing of home water surveys is generally focused on high use residential customers.

Non-Residential Customer Assistance – This category provides tailored assistance to commercial customers through commercial water surveys, monthly landscape reports to large landscape customers, and large landscape water use surveys. It provides assistance to commercial customers wanting to reduce their use of water for sanitation, hygiene, process, and landscape purposes.

Public Information and School Education – Cal Water's public information program provides general information on the need for and value and methods of water conservation through multiple media outlets, including its website, direct mail, external print media, and radio. Cal Water's school education program includes the Cal Water H2O Challenge, a project-based learning competition for grades 4-6, Cal Water Town, an interactive online learning tool, and general information and learning materials for students and teachers.

Rebate Program Information and Marketing – Through its website, bill inserts, newsletters, and radio and print media, Cal Water advertises and markets a variety of conservation rebate programs, including rebate programs for high-efficiency toilets, urinals, and clothes washers, and irrigation equipment and landscape efficiency improvements.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

Per the MOU, Cal Water annually quantifies the District's volume of apparent and real water loss. Cal Water's conservation staff have received training in the AWWA water audit method and component analysis process and have completed water balances for each Cal Water district using AWWA's water audit software. For the three-year period 2013-2015, apparent and real water loss in the Los Altos Suburban District averaged 857 AF, or about 7 percent of total production.

In addition to its routine and planned system maintenance and water loss reporting, Cal Water is planning to implement a lift-and-shift sonic data logger leak detection program in the District starting in 2017. The lift-and-shift program will survey up to one-third of main miles annually in three shifts. Each leak detection shift will last approximately 80 days. Lift-and-shift sonic data logging technology will enable Cal Water to quickly and efficiently locate leaks in one part of the water distribution network and then redeploy the equipment to another part of the network. Staff will review sound files from the loggers for potential leak warnings and discuss this information with District management, who can then assign work orders for repair crews to investigate and repair leaks. Cal Water conservatively estimates the lift-and-shift program will reduce real water loss in the District by up to 40 AFY – enough water for about 125 households. Additional potential benefits of the program include reduced excavation of streets, less staff overtime spent responding to and repairing catastrophic main breaks, and improvement to the best management practices of the valve maintenance program. This program was submitted as part of Cal Water's 2015 General Rate Case with the CPUC and is subject to CPUC approval prior to implementing.

9.2.6 Water Conservation Program Coordination and Staffing Support

Because of its status as an investor owned utility, conservation program staffing positions must be approved by the CPUC through its General Rate Case every three years. Currently authorized conservation program staffing consists of five full-time positions, which include:

- One Conservation Program Manager
- One Conservation Program Analyst
- One Landscape Program Analyst
- Two Conservation Program Coordinators

These five staff positions manage all aspects of Cal Water's conservation programs deployed across 24 separate districts serving a combined population of about 2 million through 470,000 service connections. Staffing constraints have been one of the primary challenges Cal Water has faced in expanding the scope and reach of its conservation

programs throughout its service districts. To ensure adequate management and oversight of the expansion and utilization of its conservation programs, Cal Water is proposing in its current General Rate Case to add three additional Conservation Program Coordinator positions. Proposed staffing is summarized in Table 9-2. If approved, total staffing level would increase from 5 to 8 FTE positions. While this would still be below the average for conservation programs of similar size and scope operated by other water utilities, it would be a substantial improvement over Cal Water's current conservation program staffing levels.

Table 9-2: Planned Conservation Program Staffing

Staff Position	Responsibilities	Position Status
Conservation Program Manager	Long-term program planning and implementation; program budgeting and oversight; staff oversight and management; contracting and oversight of outside services	Existing
Conservation Program Coordinator	Management and oversight of conservation programs in Cal Water districts	2 Existing 3 Proposed
Conservation Program Analyst	Program analysis and reporting, including but not limited to preparation of reports related to CPUC requirements, urban water management plans, BMP compliance reports, and SB X7-7 compliance reports	Existing
Landscape Program Analyst	Analysis and tracking of landscape program implementation and performance; coordination of landscape program rollouts; GIS/GPS management; assist regional conservation program coordinators with management/oversight of landscape programs	Existing

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.

MaP Premium and Non-Premium Toilet Replacement – This program replaces old toilets with MaP certified high-efficiency toilets. Financial rebates, direct installation, and direct distribution are used to deliver toilets to customers. For residential customers, MaP premium certified toilets which have greater water savings potential are eligible for a $100 rebate while the rebate for MaP non-premium toilets is $50. For commercial customers, a rebate of $100 is available for valve-type toilets flushing 1.28 gallons or less and EPA WaterSense labeled tank-type toilets. Cal Water centrally administers the program. This program is available to all residential and non-residential customers. Cal Water markets the program through direct mail, print media, bill stuffers, and its website. Where advantageous, Cal Water partners with local or regional agencies and community organizations to offer the program.

Urinal Valve and Bowl Replacement – This program replaces old urinals with high-efficiency urinals meeting the new 0.125 gallon per flush water use standard adopted by the California Energy Commission in April 2015. Financial rebates of up to $150 are available to customers. The program targets offices and public buildings receiving significant foot traffic. Cal Water centrally administers the program. While this program is available to all non-residential customers, marketing focuses on prime targets, such as restaurants and high-density office buildings. Cal Water markets the program through direct mail, print media, bill stuffers, and its website.

Clothes Washer Replacement – This program provides customer rebates up to $150 for residential and up to $200 for non-residential high-efficiency clothes washers. The program targets single-family households, multi-family units, multi-family common laundry areas, and commercial coin-op laundries. Cal Water centrally administers the program, and markets the program through direct mail, print media, bill stuffers, and its website. This program is available to all residential and non-residential customers. Where advantageous, Cal Water partners with local or regional agencies to offer the program.

Residential Conservation Kit Distribution – This program offers Cal Water residential customers conservation kits featuring a range of water-saving plumbing retrofit fixtures. Kits are available at no charge to customers, who can request them via Cal Water's website, via mail, or by contacting or visiting their district. Each kit includes the following items: high-efficiency showerheads, kitchen faucet aerator, bathroom faucet aerators, full-stop hose nozzle, and toilet leak detection tablets. Cal Water centrally administers this program as part of a company-wide program operated in each of its districts. This program is available to all residential customers. Cal Water markets the program through direct mail, print media, bill stuffers, and through its website.

Smart Controllers Rebates/Vouchers – This program targets residential and non-residential customers with high landscape water use. The program offers financial incentives up to $125 for residential controllers and up to $25 per station for commercial-

grade controllers to either the customer or contractor for proper installation of the Smart Controller at customer sites. The landscape contractor has the direct relationship with customers and is typically the entity customers listen to when making landscape and irrigation decisions. The program educates contractors about the customer benefits of Smart Controllers along with proper installation of the devices. This program is offered to all residential and non-residential customers. Cal Water markets the program through direct mail, print media, bill stuffers, and its website.

High Efficiency Irrigation Nozzle Web Vouchers/Rebates – Water efficient sprinkler nozzles (popup and rotating) and integrated pressure-regulated spray bodies use significantly less water than a standard sprinkler head by distributing water more slowly and uniformly to the landscape. In addition to reducing water use, water directed from these nozzles reduces run-off onto streets and sidewalks with a more directed flow. Customers are able to obtain the nozzles and spray bodies either directly through Cal Water or via a web-voucher program. Restrictions on the number of nozzles individual customers may receive vary by customer class and/or landscape size. Cal Water centrally administers this program as part of a company-wide program operated in most of its districts.

Turf Buy-Back – This program offers customers a $1 per square foot rebate to replace turf with qualified drought-tolerant landscaping. Customer applications are screened to ensure program requirements are met, including before and after photos of the retrofitted landscape area. Turf replacement rebates were offered in a subset of Cal Water districts starting in 2014 and offered across all districts starting in 2015 as a drought response measure. Governor Brown's Executive Order B-29-15 calls on the Department of Water Resources to lead a statewide initiative, in partnership with local agencies, to replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes.

Table 9-3 summarizes the DMMs currently available to Los Altos Suburban District customers.

Table 9-3: Cal Water DMMs Available to Los Altos Suburban District Customers			
1. Plumbing Fixture Replacement	Customer Class Eligibility		
Rebates	SFR	MFR	COM
MaP Premium Toilet	✓	✓	✓
MaP Non-Premium Toilet	✓	✓	✓
Urinal Bowl & Valve (< 0.125 gal)			✓
Clothes Washer (In Unit)	✓	✓	
Clothes Washer (Commercial)		✓	✓
Direct Install			
MaP Premium Toilet	✓	✓	
MaP Non-Premium Toilet			
Urinal Valve (< 0.125 gal)			
Direct Distribution			
MaP Premium Toilet	✓	✓	
Conservation Kits (showerheads, aerators)	✓		✓
2. Irrigation Equipment/Landscape Upgrades			
Rebates/Vouchers			
Smart Irrigation Controller	✓	✓	✓
High Efficiency Irrigation Popup Nozzle	✓	✓	✓
High Efficiency Irrigation Rotating Nozzle	✓	✓	✓
High Efficiency Irrigation Spray Body		✓	✓
Turf Buy-Back	✓	✓	✓
Direct Distribution			
Smart Irrigation Controller		✓	✓
3. Residential Customer Assistance			
Monthly Home Water Report	✓		
Residential Water Survey	✓	✓	
4. Non-Residential Customer Assistance			
Commercial Water Use Surveys			✓
Monthly Water Use Report			✓
Large Landscape Water Use Survey			✓
Note: MaP Premium toilets: flush vol <= 1.1 gallons; MaP Non-Premium: flush vol <= 1.28 gallons.			

9.3 Implementation over the Past Five Years

Implementation of customer DMMs over the past five years is summarized in Table 9-4. Estimated annual and cumulative water savings from customer DMM implementation is shown in the last row of the table. The water savings estimates are only for the customer DMMs listed in Table 9-3. They do not include water savings from water waste prevention ordinances, conservation pricing, general public information, or distribution system water loss management DMMs. Estimated water savings shown in Table 9-4 were calculated with the Alliance for Water Efficiency's Water Conservation Tracking Model.

Significant additional reductions in water demand were achieved in 2015 in response to the District's drought response measures, including its public information campaigns to save water and its Schedule 14.1 water use restrictions, water budgets, and drought surcharges that went into effect June 1, 2015. Relative to its 2013 reference year under the State Board's Emergency Regulation for Statewide Urban Water Conservation, water demand between June and December 2015 decreased by 38.3 percent. Per capita potable water use in 2015 was 133 GPCD compared to the District's SB X7-7 2015 interim water use target of 209 GPCD. As discussed in Chapter 5 and the next section, for purposes of SB X7-7 compliance, the District has formed a regional alliance with Cal Water's four other Bay Area water districts. Per capita potable water use in 2015 for the regional alliance was 110 GPCD compared to the regional alliance's 2015 interim water use target of 165 GPCD.

Table 9-4: Implementation of Customer DMMs: 2011-2015		
1. Plumbing Fixture Replacement	2011 – 2015 Total	Average Annual
Toilets & Urinals (number distributed)	1,539	308
Clothes Washers (number distributed)	1,485	297
Conservation Kits (number distributed)	1,923	385
2. Irrigation Equipment/Landscape Upgrades		
Smart Controllers (number distributed)	34	7
Nozzles & Spray Bodies (number distributed)	2,419	484
3. Residential Customer Assistance		
Surveys/Audits (homes receiving)	370	74
4. Non-Residential Customer Assistance		
Surveys/Audits (sites receiving)	6	1
Large Landscape Reports (sites receiving)	315	63
Estimated Water Savings (AF)	**388**	**78**
Note: Estimated water savings shown in the table are only for the 2011-2015 period. Water savings from customer DMMs implemented between 2011 and 2015 will continue after 2015 and last for the useful life of each DMM.		

Annual expenditure for implementation of customer DMMs over the past five years is summarized in Table 9-5. The table highlights expenditures from 2011 through 2015 for administrative, research, planning, program, and public information and school education.

Table 9-5: Annual DMM Expenditure: 2011-2015		
Expenditure Category	2011 – 2015 Total	Average Annual
Admin, R&D, planning	$305,045	$61,009
Program expenditures & incentives	$961,124	$192,225
Public information & school education	$179,147	$35,829
Total	**$1,445,317**	**$289,063**

9.4 Planned Implementation to Achieve Water Use Targets

Planned implementation of customer and water loss management DMMs for the period 2016 to 2020 are summarized in Table 9-6. Estimated annual and cumulative water savings from customer and water loss management DMM implementation is shown in

the last two rows of the table. The water savings estimates are only for the customer DMMs listed in Table 9-3 plus the leak detection program Cal Water has proposed to start in 2017. They do not include potential water savings from water waste prevention ordinances, conservation pricing, or general public information and school education DMMs. Estimated water savings shown in Table 9-6 were calculated with the Alliance for Water Efficiency's Water Conservation Tracking Model.

In addition to the DMMs shown in Table 9-6, Cal Water will continue to fully implement the water loss ordinance, metering, conservation pricing, public outreach, and conservation program coordination and staffing support DMMs described previously.

Annual expenditure for DMM implementation in the Los Altos Suburban District, including pro-rated staffing costs, is expected to average $0.45 million. Cumulative expenditure for DMM implementation for the period 2016-2020 is expected to total $2.25 million. Of this total, approximately 52% is earmarked for plumbing fixture, irrigation equipment, and landscape efficiency upgrades; 16% is earmarked for public information and school education programs; 6% is earmarked for distribution system water loss management; 7% is earmarked for site surveys/audits and customer water use reports; and 19% is earmarked for administrative and labor costs.

Because Cal Water is an investor-owned utility, the planned programs and corresponding expenditures for the next five years are subject to CPUC review and approval. The amount of program implementation for 2016 shown in Table 9-6 is what was approved in Cal Water's last General Rate Case. The amounts of program implementation for 2017-2019 are what Cal Water has proposed in its current General Rate Case. Conservation programs and budgets for 2020 will be determined by the subsequent General Rate Case. However, the amounts shown for 2020 in Table 9-6 are consistent with the amounts recommended in Cal Water's current Conservation Master Plan (see Appendix L).

Table 9-6: Planned Implementation of Customer and Water Loss Management DMMs: 2016-2020					
1. Plumbing Fixture Replacement	2016	2017	2018	2019	2020
Toilets & Urinals (number distributed)	346	305	305	305	305
Clothes Washers (number distributed)	423	300	300	300	300
Conservation Kits (number distributed)	192	100	100	100	100
2. Irrigation Equipment/Landscape Upgrades					
Smart Controllers (number distributed)	143	36	36	36	36
Nozzles & Spray Bodies (number distributed)	5,987	3,500	3,500	3,500	3,500
Turf Buy-Back (sq ft removed)	62,500	62,500	62,500	62,500	62,500
3. Residential Customer Assistance					
Monthly home water reports (homes receiving)	5,071	5,071	5,071	5,071	5,071
Surveys/Audits (homes receiving)	125	80	80	80	80
4. Non-Residential Customer Assistance					
Surveys/Audits (sites receiving)	0	0	0	0	0
Large Landscape Reports (sites receiving)	0	0	0	0	0
5. Water Loss Management					
Leak Detection (miles of main)	0	29	44	59	59
Estimated Annual Water Savings (AF)	**185**	**231**	**266**	**301**	**324**
Cumulative Water Savings (AF)	**185**	**415**	**681**	**982**	**1,306**

Cal Water puts all proposed conservation programs through a rigorous benefit-cost analysis as part of a comprehensive program review and assessment process. The benefit-cost analysis yields information on expected water savings over the useful life of each DMM, cost of water savings, and avoided water supply cost of water savings. Results are used to rank programs in terms of cost-effectiveness, calculate the overall program unit cost of saved water and program benefit-cost ratio for each district, and develop district conservation budgets. The proposed DMMs for the Los Altos Suburban District have an overall program unit cost of saved water of $637/AF (in 2015 dollars) and a benefit-cost ratio of 2.0. The unit cost of saved water includes all direct program costs associated with implementation of the proposed conservation programs.

Projected SB X7-7 compliance water use for Los Altos Suburban District in 2020 under planned levels of DMM implementation is 177 GPCD compared to its target water use of 185 GPCD.

SB X7-7 also allows water suppliers to form regional alliances and set regional targets for purposes of compliance. Under the regional compliance approach, water suppliers within the same hydrologic region can comply with SB X7-7 by either meeting their individual target or being part of a regional alliance that meets its regional target. The regional target is calculated as the population-weighted average target for the water suppliers comprising the regional alliance. For purposes of SB X7-7 compliance, the Los Altos Suburban District has formed a regional alliance with Cal Water's four other Bay Area water districts. Projected 2020 potable water demand for the regional alliance under planned levels of DMM implementation is 149 GPCD compared to a regional alliance target of 150 GPCD.

Los Altos Suburban District is projected to be in compliance with SB X7-7 in 2020 both individually and as a member of its regional alliance.

9.5 Members of the California Urban Water Conservation Council

Cal Water is a member of the California Urban Water Conservation Council (CUWCC). CUWCC members have the option of submitting their 2013–2014 Best Management Practice (BMP) annual reports in lieu of, or in addition to, describing the DMMs in their UWMP (CWC 10631). The BMP annual reports for the Los Altos Suburban District are provided in Appendix L.

Chapter 10
Plan Adoption, Submittal, and Implementation

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

This chapter includes the following sections:

10.1 Inclusion of All 2015 Data

This UWMP includes the water use and planning data for the entire calendar year of 2015, per DWR UWMP Guidelines (pg. 2-11).

10.2 Notice of Public Hearing

Prior to adopting the Plan, Cal Water held a formal public hearing to present information on its Los Altos Suburban District UWMP on June 7, 2016, 10:00 AM at the following location:

Los Altos Operations Center
1555 Miramonte Avenue
Los Altos, CA 94024

Two audiences were notified of the UWMP review at least 60 days prior to the public hearing: cities and counties, and the public. These audiences 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, can be found in Appendix D. Table 10-1 lists the cities and counties notified.

10.2.1 Notice to Cities and Counties

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
City of Los Altos	✓	✓
City of Mountain View	✓	✓
City of Cupertino	✓	✓
City of Sunnyvale	✓	✓
City of Los Altos Hills	✓	✓
County Name	60 Day Notice	Notice of Public Hearing
Santa Clara County	✓	✓

10.2.2 Notice to the Public

Notification to the public and to cities and counties also provided instructions on how to view the 2015 UWMP prior to the hearing, the revision schedule, and contact information of the UWMP preparer. A copy of this notice is included in Appendix D.

10.3 Public Hearing and Adoption

The deadline for public comments was June 14, 2016, one week after the public hearing. The final plan was formally adopted by Cal Water's Vice President of Engineering on June 20, 2016, and was submitted to California Department of Water Resources within 30 days of approval. Appendix B presents a copy of the signed Resolution of Plan Adoption. Appendix C contains the following:

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

10.4 Plan Submittal

This UWMP was submitted to DWR within 30 days of adoption and by the July 1, 2016 deadline. The submittal was done electronically through WUEdata, an online submittal tool. The adopted Plan was also sent to the California State Library and to the cities and counties listed in Table 10-1.

10.5 Public Availability

On or about May 24, 2016, a printed hard-copy of the Draft 2015 Urban Water Management Plan and the Conservation Master Plan were made available for review during normal business hours at the Los Altos Customer Center, located at 949 B Street, Los Altos, CA 94024. An electronic version was also made available by visiting Cal Water's website:

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

10.6 Amending an Adopted UWMP

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

Appendix A: UWMP Act Checklist

Appendix B: Resolution to Adopt UWMP

Appendix C: Correspondences

Appendix D: Public Meeting Notice

Appendix E: Service Area Map

Appendix F: Projection Analysis Worksheets (PAWS)

Appendix G: Supplemental Water Supply Information

Appendix H: DWR UWMP Tables Worksheets

Appendix I: DWR SB X7-7 Verification Forms

Appendix J: Schedule 14.1 and Local Conservation Ordinances

Appendix K: Water Efficient Landscape Guidelines

Appendix L: Conservation Master Plan

Appendix M: DWR/AWWA Water Balance Worksheet

ATTACHMENT C

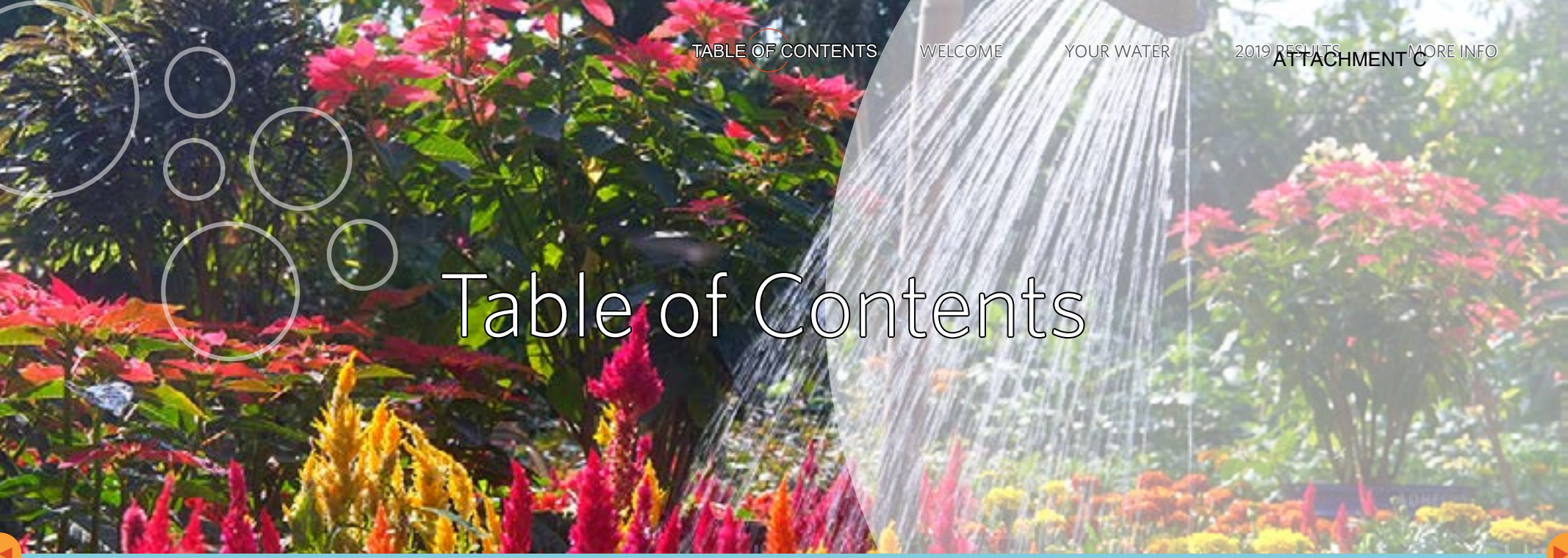
2019 Water Quality Report

LOS ALTOS SUBURBAN DISTRICT

Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

Quality. Service. Value.®

ATTACHMENT C



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Welcome

Since our inception more than 90 years ago, California Water Service (Cal Water) has been committed to enhancing the quality of life for our customers and communities. One of the most important ways we do this is by providing a reliable supply of safe, high-quality water any time you turn on the tap. And, while standards continue to become more stringent, our commitment to you never wavers.

In this system in 2019, we conducted 12,316 tests on 1,927 water samples for 232 constituents. **We are pleased to confirm that we met every primary and secondary state and federal water quality standard last year.**

Fulfilling our promise to provide quality, service, and value means more than treatment and testing, however. It also means maintaining and upgrading the infrastructure needed to transport water from the source to your tap through a network of pumps, tanks, and pipes. It means having expert professionals available to help you with both routine service needs and emergencies. It also means that, although the costs to obtain, treat, test, store, and deliver the water continue to increase across the country, we do everything we can to operate as efficiently as possible to keep your water affordable – less than a penny per gallon in most of our service areas, in fact.

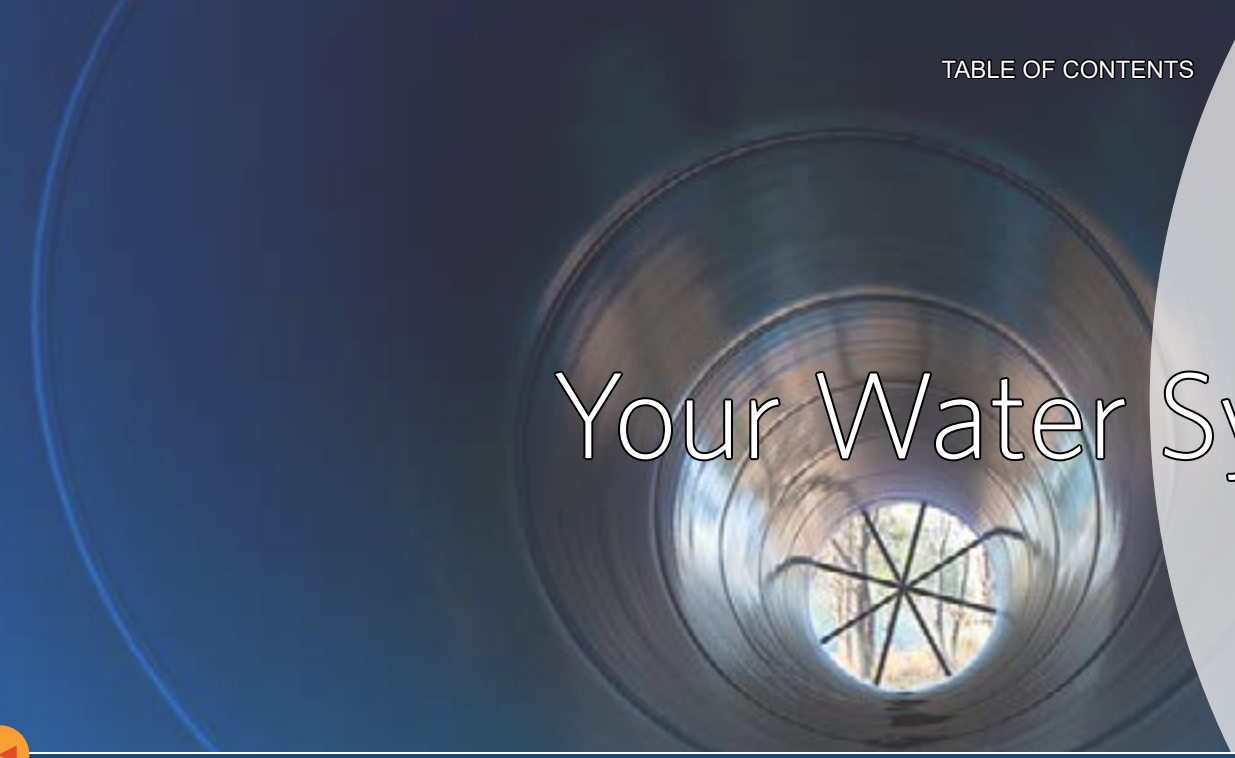
I encourage you to review this annual water quality report, also called your Consumer Confidence Report, as it details any constituents detected in your water supply in 2019 and shows how your water compares to federal and state standards. It also provides information on current water quality issues and steps we are taking to protect your health and safety.

If you have any questions, we are here to assist you. You can reach us by phone, online at www.calwater.com, or in person at our local Customer Center. You can also get water service news on our web site, via our Facebook, Twitter, and Instagram pages, and in your monthly bill. And, please be sure your contact information with Cal Water is up to date by visiting ccu.calwater.com, to ensure we can reach you with important emergency and other information.

Sincerely,
Ron Richardson, District Manager, Los Altos Suburban District

[Los Altos Suburban District 949 “B” Street Los Altos, CA 94024 (650) 917-0152]

Your Water System



Cal Water has provided high-quality water utility services in the Los Altos area since 1931. To meet the needs of our customers in Los Altos and parts of Los Altos Hills, Cupertino, Mountain View, and Sunnyvale, we use a combination of local groundwater and purchased water. Our purchased water, which is treated surface water from Valley Water (formerly called the Santa Clara Valley Water District), comes from Valley Water reservoirs and the San Joaquin-Sacramento River Delta.

Our water system includes 297 miles of main, 65 booster pumps, and 46 storage tanks.

Cal Water's company-wide water quality assurance program includes vigilant monitoring throughout our systems and testing at our state-of-the-art laboratory. Additionally, we proactively maintain and upgrade our facilities to ensure a reliable, high-quality supply.

If you have any questions, suggestions, or concerns, please contact our local Customer Center, either by phone at (650) 917-0152 or through the Contact Us link at www.calwater.com.

WATER RESOURCE SUSTAINABILITY

Cal Water helps our customers conserve water by offering programs and incentives to reduce indoor and outdoor water use, develop more efficient habits, and educate the next generation about the importance of managing water resources sustainably. We also continue to invest diligently in our infrastructure to reduce the amount of water lost to pipeline leaks and are updating our assessment of the impacts of climate change on water supply and demand. As we await more information on the long-term water-use regulations from the State of California, it's important that we make water-use efficiency a way of life. Using water wisely will ensure that we have enough water in dry years and for generations to come.

Visit **www.calwater.com/conservation** for details.

Water Quality

THE WATER QUALITY LAB

Water professionals collect samples from throughout the water system for testing at our state-of-the-art water quality laboratory, which is certified each year through the stringent Environmental Laboratory Accreditation Program (ELAP). Scientists, chemists, and microbiologists test the water for 326 constituents with equipment so sensitive it can detect levels as low as one part per trillion. In order to maintain the ELAP certification, all of our scientists must pass blind-study proficiency tests for every water quality test performed. Water quality test results are entered into our Laboratory Information Management System (LIMS), a sophisticated software program that enables us to react quickly to changes in water quality and analyze water quality trends in order to plan effectively for future needs.

CROSS-CONNECTION CONTROL

To ensure that the high-quality water we deliver is not compromised in the distribution system, Cal Water has a robust cross-connection control program in place. Cross-connection control is critical to ensuring that activities on customers' properties do not affect the public water supply. Our cross-connection control specialists ensure that all of the existing backflow prevention assemblies are tested annually, assess all connections, and enforce and manage the installation of new commercial and residential assemblies.

Backflow can occur when certain pressure conditions exist either in our distribution system or within the customer's plumbing, so our customers are our first line of defense. A minor home improvement project — without the proper protections — can create a potentially hazardous situation, so careful adherence to plumbing codes and standards will ensure the community's water supply remains safe. Please be sure to utilize the advice or services of a qualified plumbing professional.

Many water use activities involve substances that, if allowed to enter the distribution system, would be aesthetically displeasing or could even present health concerns. Some common cross-connections are:

- Garden hoses connected to a hose bib without a simple hose-type vacuum breaker (available at a home improvement store)
- Improperly installed toilet tank fill valves that do not have the required air gap between the valve or refill tube
- Landscape irrigation systems that do not have the proper backflow prevention assembly installed on the supply line

The list of materials that could potentially contaminate the water system is vast. According to the EPA, a wide variety of substances have contaminated drinking water systems throughout the country as a result of poor cross-connection control. Examples include:

- Antifreeze from a heating system
- Lawn chemicals from a garden hose or sprinkler head
- Blue water from a toilet tank
- Carbonated water from a soda dispenser

Customers must ensure that all plumbing is in conformance with local plumbing codes. Additionally, state law requires certain types of facilities to install and maintain backflow prevention assemblies at the water meter. Cal Water's cross-connection control staff will determine whether you need to install a backflow prevention assembly based on water uses at your location.

DWSAPP

By the end of 2002, Cal Water had submitted to the Division of Drinking Water (DDW) a Drinking Water Source Assessment and Protection Program (DWSAPP) report for each water source in the water system. The DWSAPP report identifies possible sources of contamination to aid in prioritizing cleanup and pollution prevention efforts.

The water sources in your district are considered most vulnerable to the following activities, for which no associated contaminant has been detected:

- Sewer collection systems
- Gas stations
- Dry cleaners
- Underground storage tanks (confirmed leaking tanks)
- Chemical/petroleum pipelines
- Electrical/electronic manufacturing
- Research laboratories
- Agricultural drainage
- Wells (agricultural)

Valley Water provides treated surface water to the Silicon Valley from three water treatment plants. Valley Water surface water is mainly imported from the South Bay Aqueduct, Lake Del Valle, and San Luis Reservoir, which all draw water from the Sacramento-San Joaquin Delta watershed. Valley Water's local water sources include Anderson and Calero Reservoirs.

Valley Water's source waters are vulnerable to potential contamination from a variety of land-use practices, such as:

- Agricultural and urban runoff
- Recreational activities
- Livestock grazing
- Residential and industrial development

The imported sources are also vulnerable to:

- Wastewater treatment plant discharges
- Seawater intrusion
- Wildland fires in open space areas

In addition, local sources are vulnerable to potential contamination from:

- Commercial stables
- Historic mining practices

No contaminant associated with any of these activities has been detected in Valley Water or Los Altos treated water. The water treatment plants provide multiple barriers for physical removal and disinfection of contaminants. For additional information, visit the Valley Water web site at www.valleywater.org.

We encourage customers to join us in our efforts to prevent water pollution and protect our most precious natural resource.

2019 Results

FLUORIDE

State law requires Cal Water to add fluoride to drinking water if public funding is available to pay for it, and it is a practice endorsed by the American Medical Association and the American Dental Association to prevent tooth decay. In this area, low levels of fluoride occur naturally, and Cal Water doesn't add any to the water supply. Show the table in this report to your dentist to see if he or she recommends giving your children fluoride supplements.

More information about fluoridation, oral health, and related issues can be found on the DDW web site at www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.html**. For general information on water fluoridation, visit us online at** www.calwater.com**.**

WATER HARDNESS

Hardness is a measure of the magnesium, calcium, and carbonate minerals in the water. Water is considered **soft** if its hardness is less than 75 parts per million (ppm), **moderately hard** at 75 to 150 ppm, **hard** between 150 and 300 ppm, and **very hard** at 300 ppm or higher.

Hard water is generally not a health concern, but it can have an impact on how well soap lathers and is significant for some industrial and manufacturing processes. Hard water may also lead to mineral buildup in pipes or water heaters.

Some people with hard water opt to buy a water softener for aesthetic reasons. However, some water softeners add salt to the water, which can cause problems at wastewater treatment plants. Additionally, people on low-sodium diets should be aware that some water softeners increase the sodium content of the water.

For more information on water hardness, visit **www.calwater.com/video/hardness**.

ATTACHMENT C

Possible Contaminants

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the United States Environmental Protection Agency (EPA) Safe Drinking Water Hotline at (800) 426-4791.

The sources of drinking water (both tap and bottled) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity.

CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA and DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, and those with HIV/AIDS or other immune system disorders; some elderly people; and infants can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. EPA and Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline.

About Lead

As the issue of lead in water continues to be top of mind for many Americans, Cal Water wants to assure you about the quality of your water. We are compliant with health and safety codes mandating use of lead-free materials in water system replacements, repairs, and new installations. We have no known lead service lines in our systems. We test and treat (if necessary) water sources to ensure that the water delivered to customer meters meets all water quality standards and is not corrosive toward plumbing materials.

The water we deliver to your home meets lead standards. However, if present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing (for example, lead solder used to join copper plumbing, and brass and other lead-containing fixtures).

Cal Water is responsible for providing high-quality drinking water to our customers' meters, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

If you are concerned about lead in your water, you may wish to have your water tested by a certified lab. More information about lead in drinking water can be found on the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

In your system, results from our lead monitoring program, conducted in accordance with the Lead and Copper Rule, were below the action level for the presence of lead.

Testing for Lead in Schools

The State of California required that all public schools built before 2010 test for lead in their drinking water by July 1, 2019. We are committed to supporting our school districts' efforts to protect students and ensure that the drinking water at their school sites are below lead limits. We worked with all school districts in our service area that serve kindergarten through 12th grade to develop sampling plans, test samples, and conduct follow-up monitoring, if needed, for corrective actions. We have published the total number of schools requesting testing from last year in this year's Water Quality report.

For more information, please see our Testing for Lead in Schools web page. For specific information regarding local school data, see the state web portal.

Lead and Copper Rule

The lead and copper rule requires us to test water inside a representative number of homes that have plumbing most likely to contain lead and/or lead solder to determine the presence of lead and copper or any action level exceedance (AL). An action level is the concentration of a contaminant which, when exceeded, triggers corrective actions before it becomes a health concern. If action levels are exceeded, either at a customer's home or system-wide, we work with the customer to investigate the issue and/or implement corrosion control treatment to reduce lead levels.

Lead Service Line Inventory (LSLI)

Protecting our customers' health and safety is our highest priority. As part of this commitment, we have been working to identify and replace any old customer water service lines and fittings that may contain lead. California Senate Bill (SB) 1398 requires all water utilities in California to develop an inventory of all distribution service line materials, and submit a list of known service lines to the state by 2018. A list of unknown service lines that may contain lead, along with a plan for replacement, is due to the state by July 1, 2020. Known lines are replaced as soon as possible.

More information regarding LSLI and specific data for each water system can be found on the state web site.

PFOA and PFOS

PFOS and PFOA are manmade compounds used prevalently in firefighting foams and to make carpets, clothing, fabrics for furniture, paper packaging for food, cookware, and other items resistant to water, grease, fire, or stains. They are also used in a number of industrial processes. They are part of a larger group of chemicals referred to as per- and poly-fluoroalkyl substances (PFAS).

In early 2020, DDW announced lower response levels for PFOA and PFOS (10 ppt for PFOA, and 40 ppt for PFOS) from the previous level of 70 ppt combined. The notification levels (5.1 ppt for PFOA, and 6.5 ppt for PFOS) were not changed.

Knowing that these are constituents of emerging concern, Cal Water had identified and tested water sources in 2019 and earlier that would be more likely to have these compounds present. With the updated response levels, we are working through our plan to conduct additional testing for these constituents in all of our water systems.

Studies indicate that long-term exposure to PFOS and PFOA over certain levels could have adverse health effects, including developmental effects to fetuses during pregnancy or infants; cancer; or liver, immunity, thyroid, and other effects. Potential health impacts related to PFAS compounds are still being studied, and research is still evolving on this issue.

Although there is no Maximum Contaminant Level (MCL) set for these substances, we have proactively monitored sources and will continue to do so. Even though it is not required by the state, we believe it is the right thing to do. When an MCL is established by DDW for these compounds, we will continue to ensure our water sources are in compliance with any set standard.

While we are doing our part to treat the water and meet the standards the public health experts have set, it's important that our population as a whole focuses on being good stewards of the environment and takes steps to prevent impacting the water supply. Additionally, Cal Water has filed a lawsuit against a group of companies that manufactured and sold firefighting foam products that released the PFOS and PFOA into the environment, to ensure the responsible parties bear the costs of treating for these chemicals, not our customers.

More information on PFOS and PFOA is available **on the DDW web site**.

Key Definitions

MAXIMUM CONTAMINANT LEVEL (MCL)
The highest level of a contaminant that is allowed in drinking water. Primary MCLs protect public health and are set as close to the PHGs (or MCLGs) as are economically and technologically feasible. Secondary MCLs (SMCLs) relate to the odor, taste, and appearance of drinking water.

IN COMPLIANCE
Does not exceed any applicable MCL, SMCL, or action level, as determined by DDW. For some compounds, compliance is determined by averaging the results for one source over a one-year period.

REGULATORY ACTION LEVEL (AL)
The concentration of a contaminant which, if exceeded, triggers treatment or other required action by the water provider.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)
The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the EPA.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL)
The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG)
The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs are set by the EPA and do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NON-DETECT (ND)
The constituent was not detected.

NOTIFICATION LEVEL (NL) AND RESPONSE LEVEL (RL)
Health-based advisory levels for unregulated contaminants in drinking water. They are used by DDW to provide guidance to drinking water systems.

PRIMARY DRINKING WATER STANDARD (PDWS)
MCLs and MRDLs for contaminants that affect health, along with their monitoring, reporting, and water treatment requirements.

PUBLIC HEALTH GOAL (PHG)
The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment without regard to cost or available detection and treatment technologies.

TREATMENT TECHNIQUE (TT)
A required process intended to reduce the level of a contaminant in drinking water.

Table Introduction

CAL WATER TESTS YOUR WATER FOR MORE THAN 140 REGULATED CONTAMINANTS AND DOZENS OF UNREGULATED CONTAMINANTS. THIS TABLE LISTS ONLY THOSE CONTAMINANTS THAT WERE DETECTED.

In the table, water quality test results are divided into four major sections: “Primary Drinking Water Standards,” “Secondary Drinking Water Standards,” “State-Regulated Contaminants with Notification Levels,” and “Unregulated Compounds.” Primary standards protect public health by limiting the levels of certain constituents in drinking water. Secondary standards are set for substances that don’t impact health but could affect the water’s taste, odor, or appearance. Some unregulated substances (hardness and sodium, for example) are included for your information. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

SUBSTANCE SOURCES

DI	Byproduct of drinking water disinfection
DS	Drinking water disinfectant added for treatment
EN	Naturally present in the environment
ER	Erosion of natural deposits
FE	Human and animal waste
FL	Water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
FR	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage
IC	Internal corrosion of household plumbing systems
IM	Discharge from industrial manufacturers
IO	Substances that form ions when in water
IW	Industrial waste
OD	Discharges of oil-drilling waste and from metal refineries
OM	Naturally occurring organic materials
PH	Inherent characteristic of water
RU	Runoff/leaching from natural deposits
SO	Soil runoff
SW	Seawater influence
VA	Various natural and manmade sources
WD	Leaching from wood preservatives

Our testing equipment is so sensitive, it can detect mineral traces as small as 1 part per trillion. That is equivalent to 1 second in nearly 32,000 years.

ATTACHMENT C

2019 Water Quality

Primary Drinking Water Standards

Microbiological	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Distribution System-Wide Highest Monthly	Source
Total coliform (systems with >40 samples/month) (Total Coliform Rule)	2019	Positive samples	5%	(0)	**Yes**	0.85%	EN
Fecal coliform and E. coli	2019	Positive samples	1[1]	(0)	**Yes**	0	FE

Radiological	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater Range	Groundwater Average	Valley Water[2] Range	Valley Water[2] Average	Source
Gross alpha	2019	pCi/L	15	(0)	**Yes**	ND–6.5	1.63	n/a	n/a	ER

Inorganic	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater Range	Groundwater Average	SCVWD Range	SCVWD Average	Source
Barium	2019	ppm	1	2 (2)	**Yes**	ND–0.17	ND	n/a	n/a	ER, OD
Fluoride	2019	ppm	2	1 (4.0)	**Yes**	ND–0.19	0.11	ND–0.13	ND	ER, FL
Nitrate as N[3]	2019	ppm	10	10 (10)	**Yes**	0.88–8.0	4.4	ND–0.5	ND	ER, FR

Lead and Copper	Year Tested	Unit	AL	PHG (MCLG)	In Compliance	Distribution System-Wide 90th Percentile	Distribution System-Wide Samples > AL	Source
Copper	2019	ppm	1.3	0.3	**Yes**	0.27	0 of 31	IC, ER, WD
Lead	2019	ppb	15	0.2	**Yes**	ND	0 of 31	IC, IM, ER
Schools that requested lead sampling in 2019: 0								

1 The MCL for fecal coliform and E. coli is exceeded when a routine sample and a repeat sample are total coliform positive, and one of these is also E. coli positive.

2 Valley Water supply data reported is from 2019. Valley Water water delivered to our system during 2019 may have been from SFPUC via SFPUC-Valley Water intertie.

3 The average nitrate level was 4.4 ppm, with a maximum level of 8.0 ppm. We are closely monitoring nitrate levels. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 ppm may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant or you are pregnant, you should seek advice from your health care provider.

ATTACHMENT C

2019 Water Quality

(Continued)

Disinfection Byproducts	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Distribution System-Wide		Source
						Range	Highest Annual Average	
Haloacetic acids	2019	ppb	60	n/a	**Yes**	ND–17	12	DI
Total trihalomethanes	2019	ppb	80	n/a	**Yes**	ND–68	49	DI

Disinfectants	Year Tested	Unit	MRDL	MRDLG	In Compliance	Distribution System-Wide		Source
						Range	Average	
Chloramine	2019	ppm	4	4	**Yes**	ND–2.7	1.6	DS

Surface Water — Turbidity	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Valley Water		Source
						Highest Level	Lowest Monthly Percent	
Turbidity[1]	2019	NTU	TT	n/a	**Yes**	0.51	100	SO

Surface Water — TOC	Year Tested	Unit	SMCL	PHG (MCLG)	In Compliance	Valley Water		Source
						Range	Average	
Total organic carbon (TOC)[2]	2019	ppm	TT	n/a	**Yes**	1.3–2.7	1.8	VA

1 For surface water systems, the treatment technique dictates that the turbidity level of the filtered water be less than or equal to 0.2 NTU in 95% of measurements taken each month and not exceed 1 NTU at any time. Turbidity is a measurement of cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

2 TOC has no health effects; however, TOC provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. The treatment technique dictates that a removal ratio of 1 or higher must be achieved. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects such as liver, kidney, or nervous system problems, and may lead to an increased risk of getting cancer. Concerns regarding disinfection byproducts are based upon exposure over many years.

2019 Water Quality

(Continued)

Secondary Drinking Water Standards

Contaminants	Year Tested	Unit	SMCL	PHG (MCLG)	In Compliance	Groundwater		Valley Water		Source
						Range	Average	Range	Average	
Chloride	2017–2019	ppm	500	n/a	**Yes**	31–83	54	27–72	51	RU, SW
Color	2017–2019	UNITS	15	n/a	**Yes**	ND–5.0	ND	n/a	n/a	OM
Specific conductance	2017–2019	US	1600	n/a	**Yes**	470–910	725	365–517	445	SW, IO
Odor	2017–2019	T.O.N.	3	n/a	**Yes**	ND–1.0	ND	1	1	OM
Iron	2017–2019	ppb	300	n/a	**Yes**	ND–110	ND	n/a	n/a	RU, IW
Sulfate	2015–2019	ppm	500	n/a	**Yes**	6.5–72	34	52–62	58	RU, IW
Total dissolved solids	2017–2019	ppm	1000	n/a	**Yes**	270–550	422	240–292	265	RU
Turbidity	2017–2019	NTU	5	n/a	**Yes**	0.10–0.85	0.26	0.01–0.51	0.04	SO

State-Regulated Contaminants with Notification Levels

Contaminants	Year Tested	Unit	NL	PHG (MCLG)	In Compliance	Groundwater		Valley Water		Source
						Range	Average	Range	Average	
Boron	2016–2018	ppm	1	n/a	**Yes**	ND–0.11	ND	0.12–0.14	0.12	UR
Chlorate	2014–2016	ug/L	800	n/a	**Yes**	64–220	137	67–140	102	UR
Hexavalent chromium[1]	2011–2019	ppb	n/a	0.02	**Yes**	ND–2.6	1.1	n/a	n/a	UR
Vanadium	2019	ppb	50	n/a	**Yes**	4.7–8.9	6.7	n/a	n/a	UR

1 The previous MCL of 0.010 mg/L (10 ppb) for hexavalent chromium was withdrawn on September 11, 2017, and there is currently no MCL in effect.

ATTACHMENT C

2019 Water Quality

(Continued)

Unregulated Contaminant Monitoring Rule (UCMR)

Contaminants	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		Valley Water		Source
						Range	Average	Range	Average	
HAA5 (DBAA, DCAA, MBAA, MCAA, and TCAA)	2019	ppb	n/a	n/a	**Yes**	ND–14	8.4	n/a	n/a	UR
HAA6Br (BCAA, BDCAA, DBAA, CDBAA, MBAA, and TBAA)	2019	ppb	n/a	n/a	**Yes**	ND–25	15	n/a	n/a	UR
HAA9 (BCAA, BDCAA, CDBAA, DBAA, DCAA, MBAA, MCAA, TBAA, and TCAA)	2019	ppb	n/a	n/a	**Yes**	ND–32	21	n/a	n/a	UR

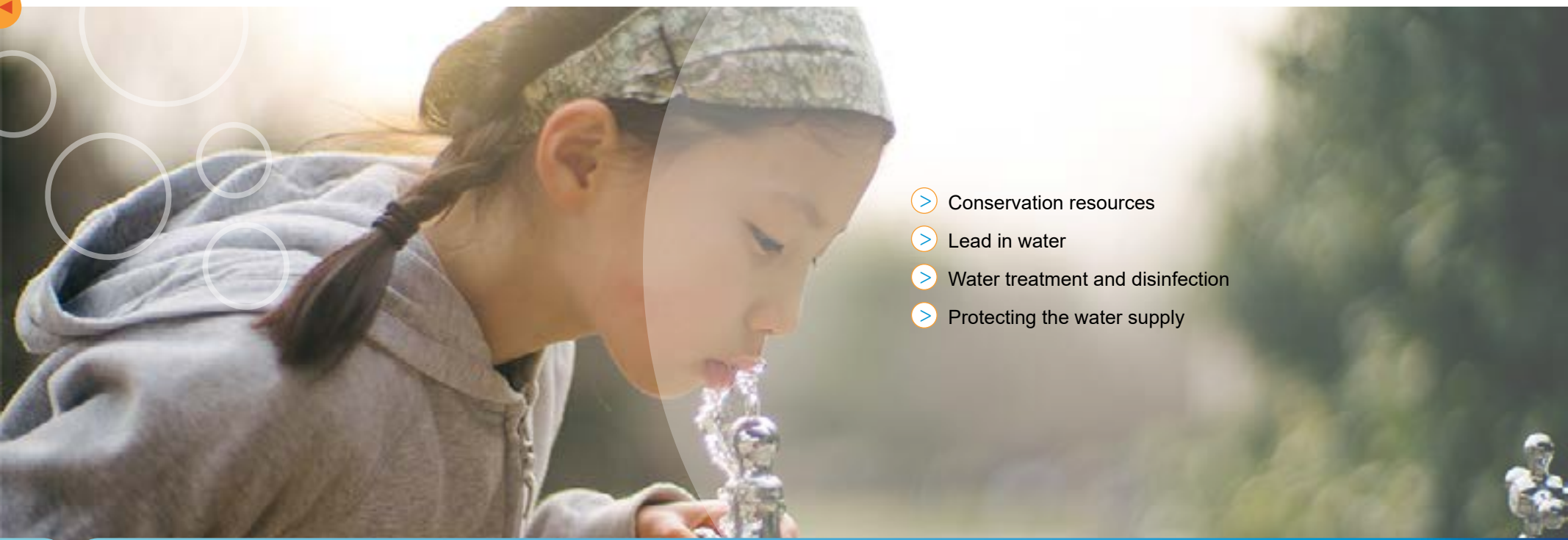
Unregulated Compounds

Contaminants	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		Valley Water		Source
						Range	Average	Range	Average	
Alkalinity (total)	2017–2019	ppm	n/a	n/a	**Yes**	140–310	249	n/a	n/a	UR
Calcium	2017–2019	ppm	n/a	n/a	**Yes**	25–110	83	20–25	22	UR
Hardness (total)	2017–2019	ppm	n/a	n/a	**Yes**	100–410	315	93–120	104	UR
pH	2019	Units	n/a	n.a	**Yes**	7.1–8.9	7.7	7.7–7.9	7.8	PH
Potassium	2017–2019	ppm	n/a	n/a	**Yes**	ND–1.3	0.07	2.1–3.4	2.7	UR
Magnesium	2017–2019	ppm	n/a	n/a	**Yes**	8.9–39	27	7–17	11	UR
Sodium	2017–2019	ppm	n/a	n/a	**Yes**	22–59	34	33–63	49	UR

Thank you.

Thanks for taking the time to learn more about your water quality! Even more information awaits you at **www.calwater.com.**
Visit our web site to get information about your account, water-use history, water rates, and water system.

You will also find water-saving tips and news about water conservation programs and rebates available in your area.



- Conservation resources
- Lead in water
- Water treatment and disinfection
- Protecting the water supply