June 2021

2020 Urban Water Management Plan

for City of East Palo Alto

eki environment & water

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TABLES

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APPENDICES

ABBREVIATIONS

AB	Assembly Bill
ACWD	Alameda County Water District
AF	acre-feet
AFY	acre-feet per year
AWSP	Alternative Water Supply Planning Program
BAIRWMP	Bay Area Integrated Regional Water Management Plan
BARR	Bay Area Regional Reliability
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPL	Bay Division Pipeline
BG	billions of gallons
BMP	best management practices
CCWD	Contra Costa Water District
Census	United States Census
CEQA	California Environmental Quality Act
CII	commercial, industrial, and institutional
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DBP	disinfection by-product
DDW	Division of Drinking Water
DMM	demand management measures
DOF	Department of Finance
DRT	Drought Response Tool
DSOD	California Department of Water Resources Division of Safety of Dams
DSS Model	Demand Management Decision Support System Model
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utilities District
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EKI	EKI Environment & Water, Inc.
EPA	City of East Palo Alto
EPASD	East Palo Alto Sanitary District
ETo	reference evapotranspiration
GPCD	gallons per capita per day
ft	feet
FY	fiscal year
GPCD	gallons per capita per day
gpf	gallons per flush
gpm	gallons per minute
GRP	Groundwater Reliability Partnership
GSP	Groundwater Sustainability Plan
GSRP	Groundwater Storage and Recovery Project
Guidebook	*2020 Urban Water Management Plans Guidebook for Urban Water Suppliers*
GWMP	groundwater management plan
HET	High-Efficiency Toilet

HHLSM	Hetch Hetchy and Local Simulation Model
HTWTP	Harry Tracy Water Treatment Plant
IRR	irrigation
ISG	Individual Supply Guarantee
JPA	Joint Powers Authority
kWh	kilowatt-hour
LCSD	Lower Crystal Springs Dam
LOS	Level of Service
LVE	Los Vaqueros Reservoir Expansion
MCL	Maximum Contaminant Level
Methodologies	*Methodologies for Calculating Baseline and Compliance Urban Per Capita Water, California Department of Water Resources Division of Statewide Integrated Water Management Water Use and Efficiency Branch*
MFR	multi-family residential
MG	million gallons
MGD	million gallons per day
MID	Modesto Irrigation District
MMWD	Marin Municipal Water District
MPMW	Menlo Park Municipal Water
MWELO	Model Water Efficient Landscape Ordinance
PAPMWC	Palo Alto Park Mutual Water Company
PG&E	Pacific Gas & Energy
R-GPCD	residential gallons per capita per day
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
RWQCP	Regional Water Quality Control Plant
RWS	Regional Water System
SB	Senate Bill
SCVWD	Santa Clara Valley Water District
SFPUC	San Francisco Public Utilities Commission
SFR	single family residential
SGMA	Sustainable Groundwater Management Act
SMP	Surface Mining Permit
Strategy	BAWSCA Long Term Reliable Water Supply Strategy
SVCW	Silicon Valley Clean Water
SVWTP	Sunol Valley Water Treatment Plant
SWAP	Shared Water Access Program
SWRCB	State Water Resources Control Board
Target	water use target
TDS	total dissolved solids
TID	Turlock Irrigation District
Title 22	California Code of Regulations, Title 22
TRVA	Tuolumne River Voluntary Agreement
UFW	unaccounted-for water
USD	Union Sanitary District

USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UV	ultraviolet
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
WBSD	West Bay Sanitary District
WCIP	Water Conservation Implementation Plan
WQD	Water Quality Division
WSA	Water Supply Assessment
WSCP	Water Shortage Contingency Plan
WSAP	Water Shortage Allocation Plan
WSIP	Water System Improvement Program
WWTP	wastewater treatment plant

1. INTRODUCTION

This chapter discusses the importance and uses of this Urban Water Management Plan (UWMP or Plan), the relationship of this Plan to the California Water Code (CWC), the relationship of this Plan to other local and regional planning efforts, and how this Plan is organized and developed in general accordance with the UWMP Guidebook 2020 (Guidebook; DWR, 2021).

1.1 Background and Purpose

The City of East Palo Alto (referred to herein as the City or East Palo Alto) serves water to the majority of the City of East Palo Alto, which is located along the San Francisco Bay in San Mateo County. The City's water system is operated as public-private partnership between the City and Veolia North America (Veolia). Other water purveyors within the City limits include the Palo Alto Park Mutual Water Company and the O'Connor Tract Co-operative Water Company. East Palo Alto delivers water to residential, commercial, industrial, and governmental customers. The City operates one groundwater well and purchases the remainder of its potable water supplies from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS). As of 2020, the City serves 4,058 connections within its service area.

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

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

The City's last UWMP was completed in 2016, referred to herein as the "2015 UMWP." This Plan is an update to the 2015 UWMP and carries forward information that remains current and relevant to this Plan, and provides additional information as required by amendments to the UWMP Act (CWC §10610 – 10657). Although this Plan is an update to the 2015 UWMP, it was developed to be a self-contained, stand-alone document and does not require readers to reference information contained in previous plans.

1.2 Urban Water Management Planning and the California Water Code

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

The UWMP Act was enacted in 1983. Over the years it has been amended in response to water resource challenges and planning imperatives confronting California. A significant amendment was made in 2009 as a result of the governor's call for a statewide 20% reduction in urban water use by 2020, referred to as "20x2020," the Water Conservation Act of 2009, and "SB X7-7." This amendment required urban retail water suppliers to establish water use targets for 2015 and 2020 that would result in statewide water savings of 20% by 2020. Beginning in 2016, urban retail water suppliers were required to comply with the water conservation requirements in SB X7-7 in order to be eligible for state water grants or loans. Chapter 5 of this plan contains the data and calculations used to determine compliance with these requirements.

A subsequent substantial revision to the UWMP Act was made in 2018 through a pair of bills (i.e., Assembly Bill 1668 and Senate Bill 606), referred to as "Making Water Conservation a California Way of Life" or the "2018 Water Conservation Legislation." These changes include, among other things, additional requirements for Water Shortage Contingency Plans (WSCPs), expansion of dry year supply reliability assessments to a five-year drought period, establishment of annual drought risk assessment procedures and reporting, and new conservation targets referred to as "annual water use objectives," which will require retailers to continue to reduce water use beyond the 2020 SB X7-7 targets.

As applicable, the City's 2020 UWMP reflects the following significant revisions to the UWMP Act that have been made since 2015.

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

1.3 Relationship to Other Planning Efforts

This Plan provides information specific to water management and planning within the City's service area. However, water management does not happen in isolation; there are other planning processes that integrate with the UWMP to accomplish urban planning. Some of these relevant planning documents include relevant city and county General Plans, water master plans, recycled water master plans, integrated resource plans, Integrated Regional Water Management Plans, and others.

This Plan is informed by and helps to inform these other planning efforts. In particular, this Plan was prepared in close coordination with the City's Public Works and Planning departments and has been integrated with the City's planning efforts. As such, the City's 2020 UWMP has been developed to be consistent with the City's 2016 General Plan (City of East Palo Alto, 2016a) and subsequent documents. Information related to future land use changes and the associated water demand and supply impacts were integrated into the 2020 UWMP based on the General Plan Update (City of East Palo Alto, 2016a) — also referred to as "Vista 2035"— and the Water Supply Assessment (WSA) prepared in support of the General Plan Update (IRM, 2015).

Primary coordination was achieved through City staff's participation in two workshops (held on 20 January 20 and 13 April 2021). At these workshops, key information regarding the 2020 UWMP content was presented, and City representatives were provided the opportunity to review, comment, and present additional information.

1.4 Plan Organization

The organization of this Plan follows the same sequence as outlined in the Guidebook (DWR, 2021).

- Chapter 1 - Introduction
- Chapter 2 - Plan Preparation
- Chapter 3 - System Description
- Chapter 4 - Water Use Characterization
- Chapter 5 - SB X7-7 Baseline, Targets, and 2020 Compliance
- Chapter 6 - Water Supply Characterization
- Chapter 7 - Water Service Reliability and Drought Risk Assessment
- Chapter 8 - Water Shortage Contingency Planning
- Chapter 9 - Demand Management Measures
- Chapter 10 - Plan Adoption, Submittal, and Implementation

In addition to these ten chapters, this Plan includes a number of appendices providing supporting documentation and supplemental information. Pursuant to CWC §10644(a)(2), this Plan utilizes the standardized forms, tables, and displays developed by DWR for the reporting of water use and supply information required by the UWMP Act. This Plan also includes additional tables, figures, and maps to augment the set developed by DWR, as appropriate. The table headers indicate if the table is part of DWR's standardized set of submittal tables.

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

Although not required by the UWMP Act, in the Guidebook (DWR, 2021), DWR recommends that all suppliers that are participating in, or may participate in, receiving water from a proposed project that is considered a "covered action" under the Delta Plan—such as a (1) multiyear water transfer; (2) conveyance facility; or (3) new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta (Delta)—provide information in their UWMP to demonstrate consistency with the Delta Plan policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code of Regulations, Title 23, Section 5003).

The SFPUC, the City's wholesale agency, has made a legal determination that this requirement does not apply to their water sources.[1]

1.6 Lay Description

☑ ***CWC § 10630.5***

Suppliers shall provide a simple lay description of their projected water use for the foreseeable future.

This Urban Water Management Plan (UWMP or Plan) is prepared for the City of East Palo Alto (City or East Palo Alto), which serves drinking water to a population of approximately 25,935. This UWMP serves as a foundational planning document and includes descriptions of historical and projected water demands, and water supplies and reliability over a more than 20-year planning horizon. This document also describes the actions the City is taking to promote water conservation, both by the City itself and affiliated agencies (referred to as "demand management measures") and includes a plan to address potential water supply shortages such as drought or other impacts to supply availability (the "Water Shortage Contingency Plan"). This UWMP is updated every five years in accordance with state requirements under the Urban Water Management Planning Act and amendments (Division 6 Part 2.6 of the California Water Code [CWC] §10610 – 10656). Past plans developed for the City are available on the California Department of Water Resources (DWR) Water Use Efficiency Data Portal website: https://wuedata.water.ca.gov/. This document includes ten chapters, which are summarized below.

Chapter 1 – Introduction

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

Chapter 2 – Plan Preparation

This chapter discusses key structural aspects related to the preparation of the UWMP, and describes the coordination and outreach conducted as part of the preparation of the Plan, including coordination with

[1] Email from BAWSCA, dated February 9, 2021.

local agencies (i.e., Bay Area Water Supply and Conservation Agency [BAWSCA]), water wholesalers (i.e., San Francisco Public Utilities Commission [SFPUC]), the other Wholesale Customers, and the public.

Chapter 3 – System Description

This chapter provides a description of the City's water system and the service area, including information related to the climate, demographics, and the water distribution system. The City supplies water to the majority of customers in the incorporated City boundaries. The City is located in San Mateo County and serves a population of approximately 25,935. As with many Bay Area cities, there is very little undeveloped land in the City for new developments or parks, and therefore new housing and jobs must come from redevelopment, infill, densification, or adaptive building reuse. Planned development is described in the City's General Plan Update and the associated Water Supply Assessment (WSA). The densities of new developments are expected to be higher than the existing land uses they replace, which drives the population and employment growth projections. Population in the City is projected to increase at an annual rate of 1% and employment is projected to increase at an annual rate of 10%.

The City distributes water purchased from the SFPUC Regional Water System (RWS) to its one pressure zone via three SFPUC service connections (turnouts). The City operates one groundwater well for potable water use and maintains three interties with adjacent water systems.

The City's service area is located within a region characterized by a Mediterranean climate with cool, wet winters and warm, dry summers. The majority of precipitation falls during late autumn, winter, and spring, averaging 15.2 inches of rainfall annually.

Chapter 4 – Water Use Characterization

This chapter provides a description of and quantifies the City's current and projected demands through the year 2045. The City provides drinking water (also referred to as "potable water") to customers. Water demands refer not only to the water used by customers but also includes the water used as part of the system maintenance and operation, as well as unavoidable losses inherent in the operation of a water distribution system. Water demand within the City was 552 million gallons (MG) per year on average between 2016 and 2020.

Taking into account historical water use, expected population increase and other growth, climatic variability, and other assumptions, water demand within the City is projected to increase to 1,078 MG by 2045, a projected increase of 89% compared to the water demand of 572 MG in 2020.

Chapter 5 – SB X7-7 Baseline, Targets, and 2020 Compliance

In this chapter, the City demonstrates compliance with its per capita water use target for the year 2020. The Water Conservation Act of 2009 (Senate Bill X7-7) was enacted in November 2009 and requires the state of California to achieve a 20% reduction in urban per capita water use by 31 December 2020. In order to achieve this, each urban retail water supplier was required to establish water use targets for 2015 and 2020 using methodologies established by DWR. The City is in compliance with its 2020 water use target of 124 gallons per capita per day (GPCD), having reduced its water use in 2020 to 60 GPCD.

Chapter 6 – Water Supply Characterization

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

The City gets its water supply from two sources: (1) purchased water from the SFPUC RWS and (2) one groundwater well. The City's contractual allocation of SFPUC supplies (known as its Individual Supply Guarantee [ISG]) is 3.46 million gallons per day (MGD), or approximately 1,264 MG per year. During normal years, the City expects to produce 7 MG per year from groundwater.

Calculation and reporting of water system energy intensity is a new requirement for the 2020 UWMPs. Energy intensity is defined as the net energy used for water treatment, conveyance, and distribution for all water entering the distribution system, less the amount of energy produced within the water system itself. The City distribution system is pressurized by the SFPUC RWS and thus does not use any energy to treat or distribute water from SFPUC. Additionally, the City did not operate its groundwater well between 2015 and 2020.

Chapter 7 – Water Service Reliability and Drought Risk Assessment

This chapter assesses the reliability of the City's water supplies, with a specific focus on potential constraints such as water supply availability, water quality, and climate change. The intent of this chapter is to identify any potential constraints that could affect the reliability of the City's supply (such as drought conditions) to support the City's planning efforts to ensure that its customers are well served. Water service reliability is assessed during normal, single dry-year, and multiple dry-year hydrologic conditions.

Based on this analysis, the City expects the available supplies to be sufficient to meet projected demands in normal years. However, significant shortfalls are projected in dry year conditions, which if realized would require the City to enact its Water Shortage Contingency Plan. Numerous uncertainties exist in the assumptions that drive the projected dry year shortage estimates, and the City anticipates revising its water service reliability assessment within the next five years as some of these uncertainties are resolved.

Chapter 8 – Water Shortage Contingency Planning

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

Chapter 9 – Demand Management Measures

This chapter includes descriptions of past and ongoing conservation programs offered by the City. These conservation programs and policies address each demand management measure (DMM) category outlined in the UWMP Act, specifically: (1) water waste prevention ordinances, (2) metering, (3) conservation pricing, (4) public education and outreach, (5) distribution system water loss management, (6) water conservation program coordination and staffing support, and (7) "other" DMMs. Additionally, the City participates in water conservation programs offered by BAWSCA.

Chapter 10 – Plan Adoption, Submittal, and Implementation

This chapter provides information on a public hearing, the adoption process for the UWMP and the WSCP, the submittal process, plan implementation, and the process for amending the adopted UWMP and WSCP. Prior to adopting the Plans, the City held a public hearing for the 2020 UWMP and WSCP on 15 June 2021, 6:30 PM. The 2020 UWMP and WSCP were both adopted during the same meeting, following the public hearing. This UWMP and WSCP was submitted to DWR within 30 days of adoption and by the 1 July 2021 deadline.

2. PLAN PREPARATION

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

2.1 Compliance with the UWMP Act, Including Changes Since 2015

☑ ***CWC § 10620 (b)***

Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

The City's 2020 UWMP has been prepared in accordance with the Urban Water Plan Act (UWMP Act), which is defined by the California Water Code (CWC) §10610 - §10657. The UWMP Act requires every urban water supplier that provides water for municipal purposes to more than 3,000 connections or supplies more than 3,000 acre-feet (AF) of water annually, to adopt and submit a plan every five years to the California Department of Water Resources (DWR). Table 2-1 provides information on the City's public water system which services 4,058 connections within its service area and is therefore subject to the requirements of the UWMP Act.

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

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
CA4110024	City of East Palo Alto	4,058	572
	TOTAL	4,058	572
NOTES: (a) 572 MG is approximately equal to 1,756 acre-feet.			

As indicated in Table 2-2, the City's 2020 UWMP is an individual plan. It has been prepared in general accordance with the format suggested in DWR's UWMP Guidebook (Guidebook; DWR, 2021). Text from the UWMP Act has been included in grey boxes at beginning of relevant sections of this UWMP. The information presented in the respective UWMP sections and the associated text, figures, tables, and charts are collectively intended to fulfill the requirements of that sub-section of the UWMP Act. To the extent practicable, supporting documentation has also been provided in Appendix A through Appendix L. Other sources for the information contained herein are provided in the references section of the document.

Per CWC §10644(a)(2), selected information for the 2020 UWMP updates must be presented in standardized tables for electronic submittal to DWR. To the extent applicable, text and tables in the main body of the UWMP document have been cross-referenced to the companion DWR tables.

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

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance *if applicable*
X	Individual UWMP		
		Water Supplier is also a member of a RUWMP	
		Water Supplier is also a member of a Regional Alliance	
	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

2.2 Coordination and Outreach

As described below and in Chapter 10, this UWMP has been prepared in coordination with the Bay Area Water Supply and Conservation Agency (BAWSCA), the BAWSCA member agencies (i.e., the Wholesale customers), the San Francisco Public Utilities Commission (SFPUC), the public, and other appropriate entities.

2.2.1 Role of BAWSCA and the UWMP Common Language

Among its other functions, BAWSCA represents the City and the 25 other water districts, cities, and utilities, collectively referred to as the "Wholesale Customers", in negotiations and other coordination efforts with the SFPUC. Together with the SFPUC, BAWSCA developed common language for inclusion in each Wholesale Customers' 2020 UWMP regarding the following common issues:

- Description of BAWSCA;
- Regional Water Demand and Conservation Projections;
- Long Term Reliable Water Supply Strategy;
- Making Conservation a Way of California Life Strategic Plan
- Tier One Drought Allocations;
- Tier Two Drought Allocations;
- SFPUC Regional Water System
- Individual Supply Guarantees (ISGs);
- 2028 SFPUC Decisions (formerly 2018 SFPUC Decisions);
- Reliability of the Regional Water System;
- Climate Change;

- SFPUC's Efforts to Develop Alternative Water Supplies
- SFPUC's Decision to use Bay-Delta Plan Scenario in UWMP Submittal Tables;
- Bay Delta Plan Implementation Starting Year;
- SFPUC's Decision to Present Both Modeling Results in its UWMP;
- Rate Impacts of Water Shortages; and
- BAWSCA Conservation Programs.

For clarification purposes, and as shown below, the common language provided by BAWSCA is shown in grey font and has been indented for emphasis; it is otherwise presented unchanged from the original text provide by BAWSCA. As a result, there may be some redundancy in the information presented and the number of times that certain terms are abbreviated or defined. A description of BAWSCA's role generally and related to the 2020 UWMP development process is provided below.

> BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies that purchase wholesale water supplies from the San Francisco Public Utilities Commission (SFPUC). Collectively, the BAWSCA member agencies deliver water to over 1.8 million residents and nearly 40,000 commercial, industrial and institutional accounts in Alameda, San Mateo and Santa Clara Counties.
>
> BAWSCA also represents the collective interests of these wholesale water customers on all significant technical, financial, and policy matters related to the operation and improvement of the SFPUC's Regional Water System (RWS).
>
> BAWSCA's role in the development of the 2020 Urban Water Management Plan (UWMP) updates is to work with its member agencies and the SFPUC to seek consistency among UWMP documents.

2.2.2 Wholesale Coordination

☑ ***CWC § 10631 (h)***

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

The SFPUC is a wholesale water supplier to all of the BAWSCA member agencies and is the only wholesale water supplier to East Palo Alto. As part of the coordination effort for the 2020 UWMP, and in compliance with CWC §10631(h), the City supplied BAWSCA with its water demand projections through 2045 for transmittal to the SFPUC.[2]

Additionally, as described in more detail in Chapter 7, the City has relied upon the water supply reliability projections provided by the SFPUC for the purposes of analyzing the reliability of its SFPUC supplies during normal and dry years through 2045 (Table 2-3).[3]

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

The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name
San Francisco Public Utilities Commission
NOTES:

2.2.3 Agency Coordination

☑ ***CWC § 10620 (d) (3)***

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

As a member of BAWSCA and the BAWSCA Water Management Representative Committee, the City has coordinated closely with BAWSCA and its 25 other member agencies throughout the update of the City's UWMP. Between 12 February 2021 and 9 April 2021, City staff representatives attended a series of five webinar on supply reliability hosted by BAWSCA. During the webinars, BAWSCA and the member agencies reviewed the water supply reliability projections provided by the SFPUC, as well as the updated dry year supply allocations described in Chapter 7. Representatives for the City also attend monthly water management meetings with BAWSCA and its member agencies that, among other topics, include discussion of items pertinent to the preparation of the 2020 UWMPs.

The City has also coordinated with the wastewater agencies serving the City's service area, the East Palo Alto Sanitary District (EPASD) and the West Bay Sanitary District (WBSD), in the preparation of this Plan.

[2] Email to BAWSCA, dated April 1, 2021

[3] Email from BAWSCA dated January 25, 2021, and information provided by the SFPUC, Appendix G.

This coordination included, among other things, the provision of data regarding the volume of wastewater collected within the City's service area.

In addition, on 4 February 2021 and 12 March 2021, the City notified local and regional water retailers and public agencies of the City's intent to prepare this 2020 UWMP (and the associated Water Shortage Contingency Plan; WSCP), and the associated public hearing (Table 2-4). A sample copy of the notice is provided in Appendix B.

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

City Name	60 Day Notice	Notice of Public Hearing	Provided Comments
Alameda County Water District	☑	☑	
Bay Area Water Supply and Conservation Agency	☑	☑	
City of Brisbane	☑	☑	
City of Burlingame	☑	☑	
City of Daly City	☑	☑	
City of Foster City	☑	☑	
City of Hayward	☑	☑	
City of Menlo Park	☑	☑	
City of Millbrae	☑	☑	
City of Milpitas	☑	☑	
City of Mountain View	☑	☑	
City of Palo Alto	☑	☑	
City of Redwood City	☑	☑	
City of San Bruno	☑	☑	
City of Santa Clara	☑	☑	
City of Sunnyvale	☑	☑	

Agency Name	60 Day Notice	Notice of Public Hearing	Provided Comments
California Water Service	☑	☑	
Coastside County Water District	☑	☑	
East Bay Municipal Utility District	☑	☑	
Mid-Peninsula Water District	☑	☑	
North Coast County Water District	☑	☑	
O'Connor Tract Cooperative Water Company	☑	☑	
Palo Alto Park Mutual Water Company.	☑	☑	☑
Purissima Hills Water District	☑	☑	
San Francisco Public Utilities Commission	☑	☑	
San Jose Municipal Water System	☑	☑	
County of San Mateo	☑	☑	
Stanford University	☑	☑	
Town of Hillsborough	☑	☑	
Westborough Water District	☑	☑	
NOTES: This list includes cities that the City of East Palo Alto chose to notify, not the cities that the City of East Palo was required to notify.			

2.2.4 Public Participation

☑ ***CWC § 10642***

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

Water suppliers are required by the UWMP Act to encourage active involvement of the community within the service area prior to and during the preparation of its UWMP and WSCP. The UWMP Act also requires water suppliers to make a draft of the plans available for public review and to hold a public hearing regarding the findings of the UWMP and WSCP prior to adoption. In addition to sending notices to the various agencies listed in Table 2-4, the City also included a public notice in the local newspaper notifying the public of the City's intent to prepare its UWMP and WSCP. Drafts of the Plans were made available for public inspection at the City of East Palo Alto's City Hall and Central Public Library. The Public Review Draft 2020 UWMP and WSCP was made available on the City's website on 28 May 2021 (https://www.cityofepa.org/publicworks/project/urban-water-management-plan-update-2020).

On 1 June 2021 and 8 June 2021, the City published a notice in the *San Mateo County Times* daily newspaper informing the public that the 2020 UWMP and WSCP would be available for public review at the above mentioned locations, consistent with requirements of California Government Code 6066.[4] The notice also informed the public that the 2020 UWMP and WSCP public hearing would be held via video conference meeting on 15 June 2021. Copies of the newspaper notices are included in Appendix C.

[4] Government Code section 6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

2.3 UWMP Structure, Standard Units, and Basis for Reporting

Per CWC §10644(a)(2), selected information for the 2020 UWMP updates must be presented in standardized tables for electronic submittal to DWR. As such, tables in the UWMP document follows DWR required format and have been cross-referenced to DWR table numbers.

Per the Guidebook, the UWMP preparer is requested to complete a checklist of specific UWMP requirements to assist the DWR review of the submitted UWMP. The completed checklist is included in Appendix A.

As shown in Table 2-5, the City is a retailer. The information presented in this UWMP is reported on a fiscal year basis. As such, "2020" refers to Fiscal Year 2019-20, and so forth. The units of measure for reporting water volumes is million gallons (MG) and is maintained consistently throughout the Plan, unless otherwise noted (Table 2-5).

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

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

Type of Supplier	
	Supplier is a wholesaler
X	Supplier is a retailer
Fiscal or Calendar Year	
	UWMP Tables are in calendar years
X	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
07/01	
Units of measure used in UWMP	
Unit	MG
NOTES:	

3. SYSTEM DESCRIPTION

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

Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

The City of East Palo Alto's (City or East Palo Alto) water system is operated as a public-private partnership between the City and Veolia North America (Veolia). The City serves the majority of the City of East Palo Alto, which is located along San Francisco Bay in San Mateo County, between the cities of Menlo Park and Palo Alto (Figure 3-1). Other purveyors within City limits include: (1) the Palo Alto Park Mutual Water Company, which serves customers within the western portion of the City using five groundwater production wells located within the City, and (2) the O'Connor Tract Co-operative Water Company, which serves the southwestern portion of the City using two groundwater production wells located in the City of Menlo Park. Figure 3-2 shows the City's service area and the approximate service area extents of the other water purveyors within the City. This UWMP is only for the City's water service area.

The City is a member of Bay Area Water Supply and Conservation Agency (BAWSCA) and gets its water supply from two sources: (1) purchased water from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) and 2) one groundwater well. A major portion of the City's water system was formerly operated by the County of San Mateo under the name East Palo Alto County Waterworks District. The City of East Palo Alto assumed operation of the water distribution system from the County of San Mateo in 2001. Currently, Veolia manages the distribution, operation, and maintenance of the municipal water system on behalf of, and under contract with, the City.

As required by the Urban Water Management Planning Act (UWMP Act), specific information about the City service area, population, and climate is provided below.

3.1 Population and Employment Trends Within the Service Area

3.1.1 Historical and Projected Population

Historical and projected population data from 2000 through 2045 within the City's service area are shown in Table 3-1 and the associated chart. Consistent with DWR requirements, the historical and current population served by the City has been estimated herein using United States Census Bureau data and the DWR Population Tool as documented in Section 5.1

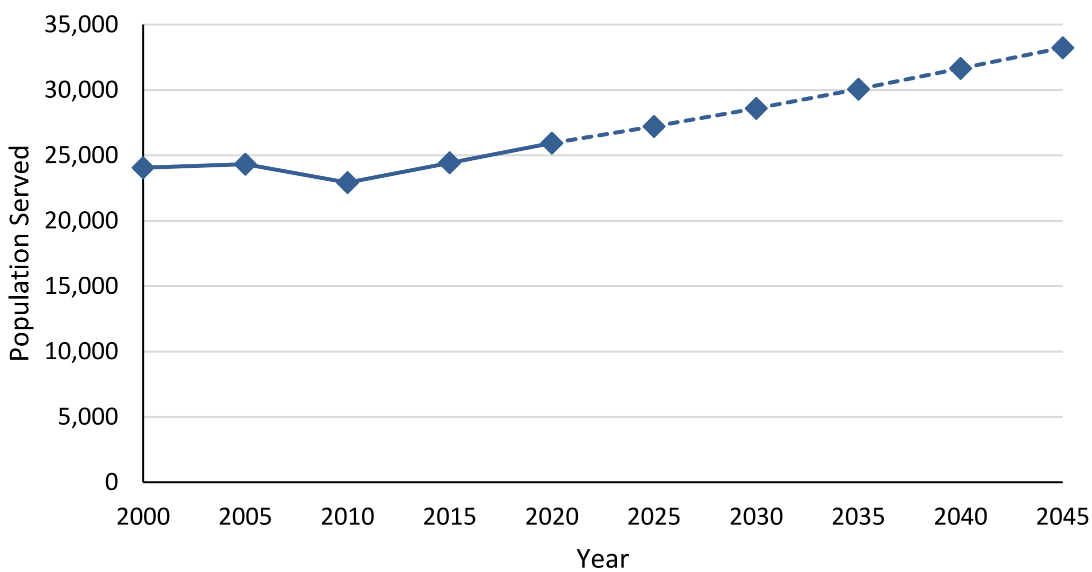
The City's service area is largely built-out and population growth is attributed primarily to redevelopment and infill projects within the existing urban footprint. The population projections presented in Table 3-1 are consistent with the General Plan Update and associated WSA (City of East Palo Alto, 2016a and IRM, 2015). The City-wide population projected in the General Plan Update was adjusted, based on 2010 Census data, to reflect the portion of this population that is included the City's service area.

The total projected population within the City's service area is expected to be 33,230 by 2045, which is equivalent to an increase of 28% relative to the 2020 population of 25,935 or an average annual increase of 1%.

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

Population Served	2020	2025	2030	2035	2040	2045
	25,935	27,215	28,589	30,062	31,646	33,230
NOTES: (a) Projected population growth based on City's General Plan (City of East Palo Alto, 2016a) and its associated WSA (IRM, 2015).						

Chart 3-1 Current and Projected Population



3.1.2 Future Employment Growth

Current and projected employment data from 2020 through 2045 within the City's service area are presented in Table 3-2 and the associated chart. Future population and employment projections are consistent with the City's General Plan and associated WSA (City of East Palo Alto, 2016a and IRM, 2015).

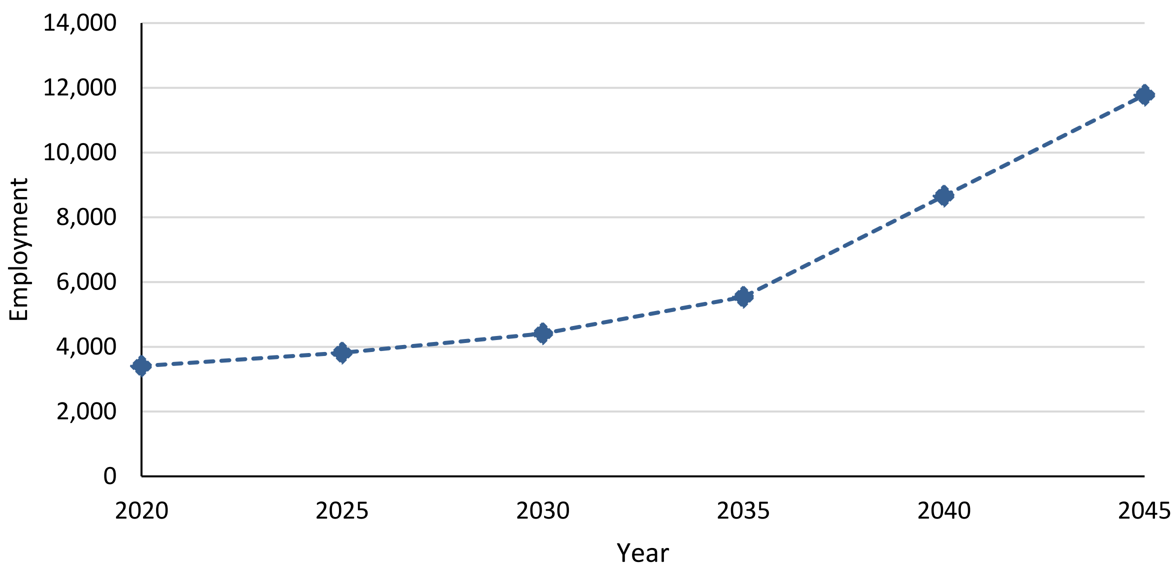
The City also supplies water to its commercial, industrial, and institutional (CII) customers, which were collectively estimated to provide 3,407 jobs within the City's service area in 2020 (IRM, 2015). The City is anticipating significant commercial growth over the forecast timeframe, with the number of jobs within the City's service area projected to increase by 246% to 11,779 in 2045, with an average annual increase of 10% (Table 3-2). Employment is projected to increase at a steady rate from 2020 to 2030, with a large increase in jobs occurring between 2030 and 2040.

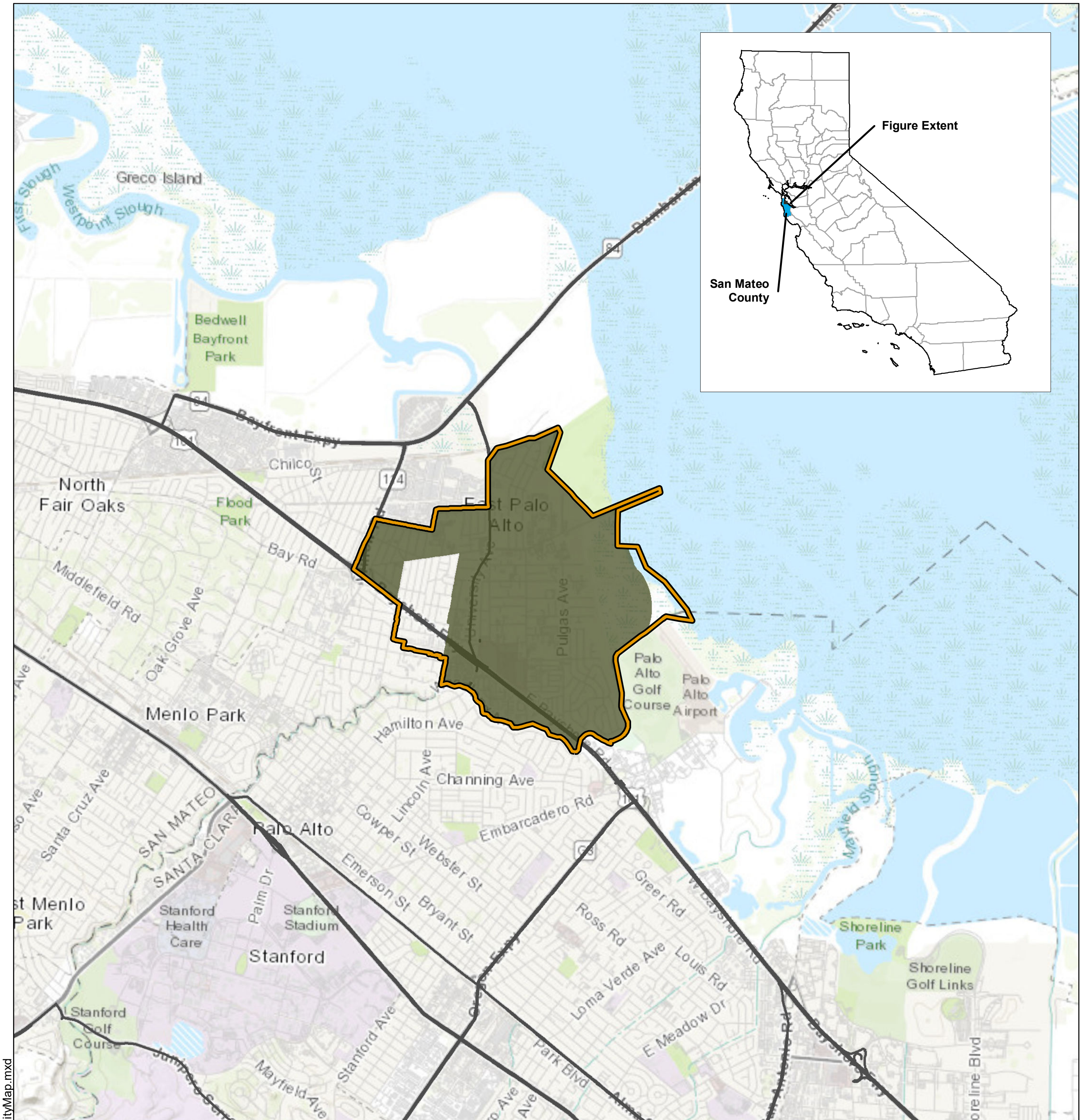
Table 3-2 Employment - Current and Projected

	2020	2025	2030	2035	2040	2045
Service Area Employment	3,407	3,815	4,409	5,539	8,659	11,779

NOTES:
(a) Projected employment growth from City's General Plan (City of East Palo Alto, 2016a) and its associated WSA (IRM, 2015).

Chart 3-2 Current and Projected Employment





Legend

East Palo Alto City Limit

East Palo Alto Service Area

Notes

1. All locations are approximate.

Sources

Topographic base map provided by ArcGIS Online

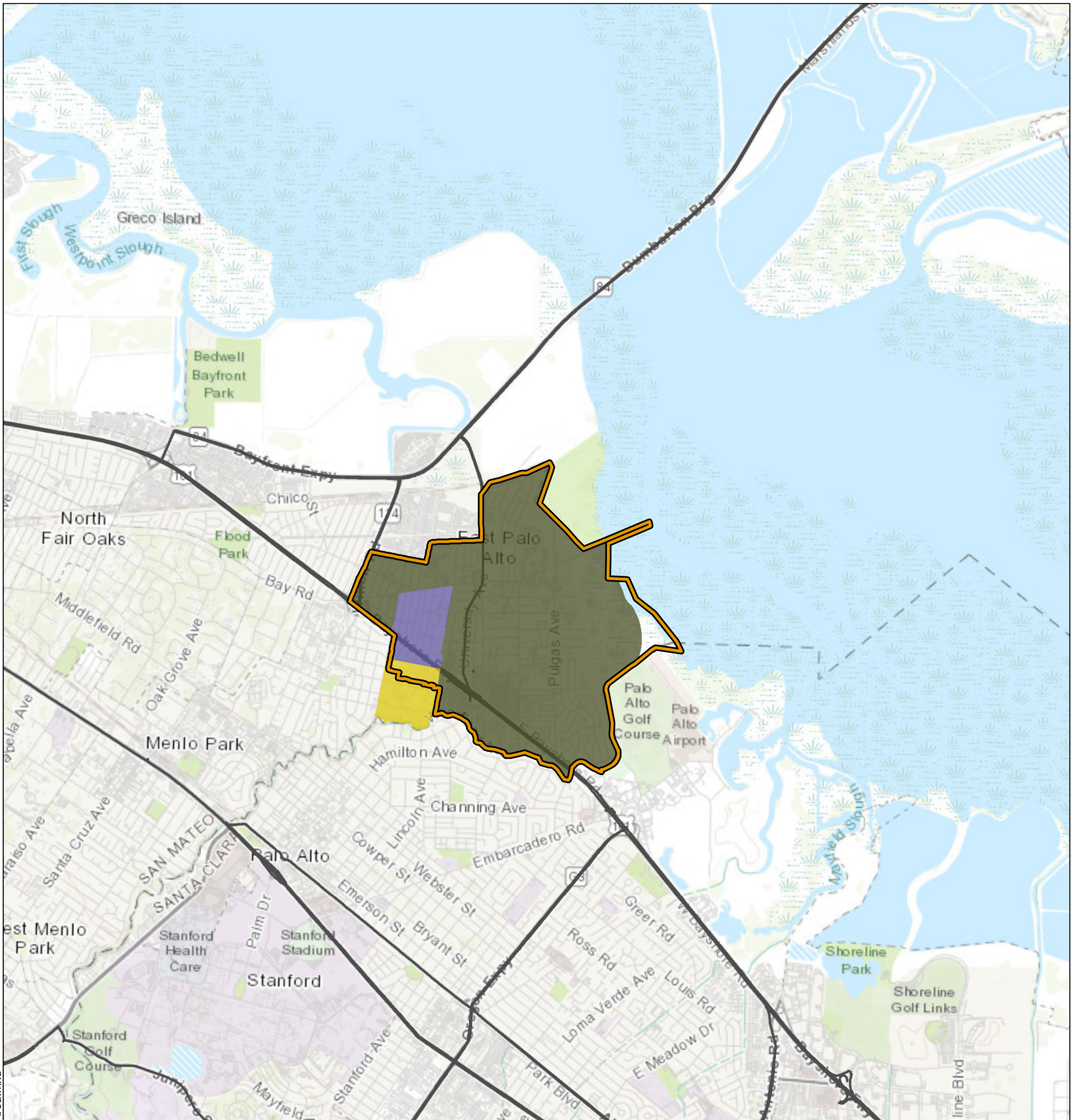
Regional Vicinity Map

City of East Palo Alto
2020 Urban Water Management Plan
East Palo Alto, CA
June 2021
EKI C00118.00

Figure 3-1

eki environment & water

Path: X:\C00118\Maps\2021\06\Fig3-1_EastPaloAlto_RegionalVicinityMap.mxd



Legend

East Palo Alto City Limit

Service Areas

City of East Palo Alto

Palo Alto Park Mutual Water Company

O'Connor Tract Co-operative Water Company

Notes

1. All locations are approximate.
2. Service area data were provided by City of East Palo Alto on 12 April 2016.

Sources

Topographic base map provided by ArcGIS Online

Water Service Area

City of East Palo Alto
2020 Urban Water Management Plan
East Palo Alto, CA
June 2021
EKI C00118.00

Figure 3-2

Path: X:\C00118\Maps\2021\06\Fig3-2_EastPaloAlto_WaterServiceArea.mxd

3.1.3 Other Social, Economic, and Demographic Factors

Demographics for the City are summarized in Table 3-3. The same data are also provided for the state of California as a whole and for San Mateo County and were obtained from the U.S. Census Bureau QuickFacts website (U.S. Census, 2021). Relative to the rest of San Mateo County and California, the City is racially diverse, with less than half of the population identifying as White and with a large percentage of the population identifying as Hispanic or Latino. Educational attainment and median household income in the City are lower than for the County and state as a whole.

Table 3-3 Demographic and Housing Characteristics

Demographics (a)	City of East Palo Alto	San Mateo County	California
Age and Sex			
Persons under 5 years	7.6%	5.5%	6.0%
Persons under 18 years	28%	20%	23%
Persons 65 years and older	17%	6.9%	15%
Female persons	49%	51%	50%
Race and Hispanic Origin			
White alone	35%	60%	72%
Black or African American alone	12%	2.8%	6.5%
American Indian and Alaska Native alone	1.4%	0.9%	1.6%
Asian alone	5.0%	31%	16%
Native Hawaiian and Other Pacific Islander alone	4.6%	1.5%	0.50%
Two or More Races	4.3%	4.8%	4.0%
Hispanic or Latino	66%	24%	39%
White alone, not Hispanic or Latino	10%	39%	37%
Families & Living Arrangements			
Persons per household	3.81	2.87	2.95
Living in same house 1 year ago, percent of persons age 1 year+	89%	88%	87%
Language other than English spoken at home, age 5 years+	70%	46%	44%
Education			
High school graduate or higher, persons age 25 years+	66%	90%	83%
Bachelor's degree or higher, persons age 25 years+	21%	51%	34%
Income & Poverty			
Median Household Income (2019 dollars)	$67,087	$122,641	$75,235
Per capita income in past 12 months (2019 dollars)	$27,703	$61,545	$36,955
Persons in poverty	13.5%	6.1%	12%

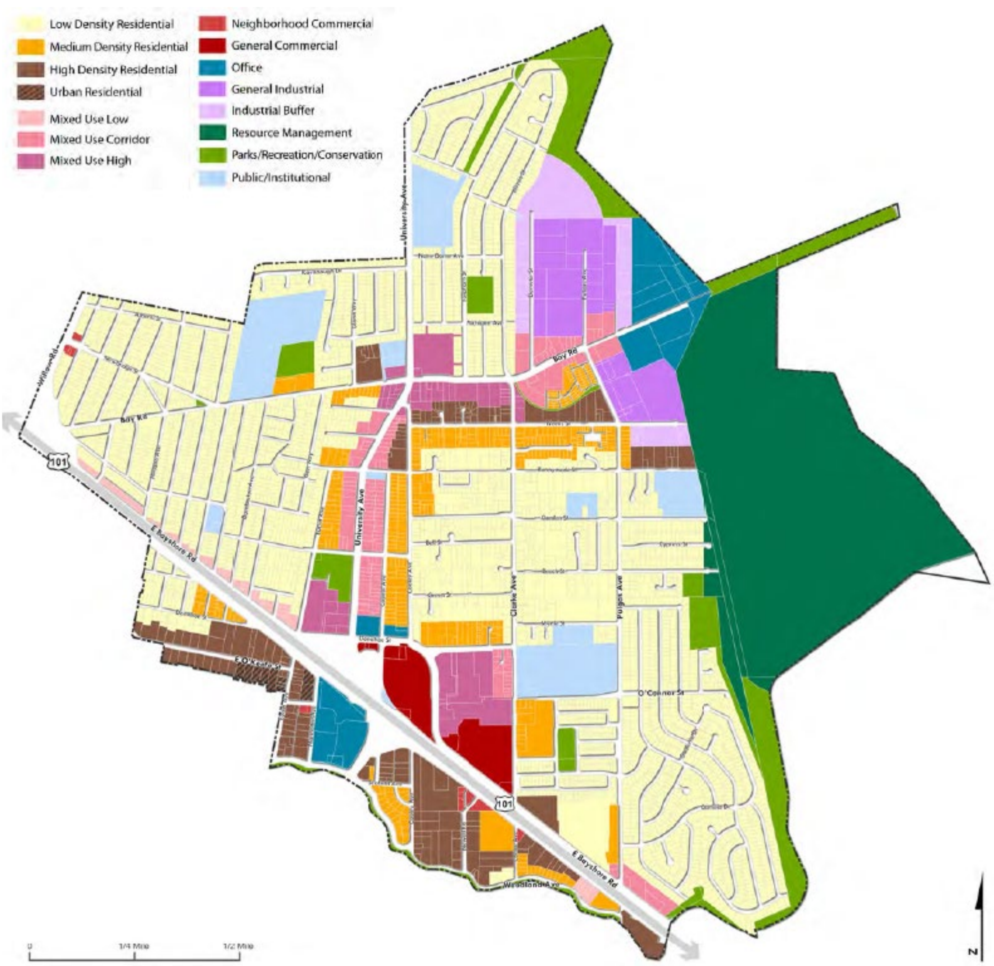
NOTES:
(a) Demographic data per the U.S. Census Bureau QuickFacts website (U.S. Census, 2021).

3.2 Land Uses Within Service Area

General Plans are required by State law to guide land use and development within cities (California Government Code §65030.1). In 2012, the City began to engage the community and refine the City's vision through an update to the General Plan. The General Plan Update (City of East Palo Alto, 2016a) was adopted October 2016. The General Plan Update provides the foundation for establishing goals, purposes, zoning, and activities allowed on each land parcel. Figure 3-3 illustrates the planned distribution of land uses throughout the service area.

The City is mostly built out with the exception of open space and marshlands and vacant land in the Ravenswood industrial area. The densities of new developments are expected to be higher than the existing land uses they replace, which drives the population and employment growth projections presented in Section 3.1. Of the developed areas, residential uses are the most common land use in the City. As described in the General Plan Update, the majority of the City's land use is residential (50%), while the remaining 50% is split among other uses, notably CII (20%), Parks and Recreation (2%), Vacant (9%) and Bayland and Marshland (19%).

Figure 3-3 General Plan Land Use Designations



Source: City of East Palo Alto, 2016a

3.3 Climate

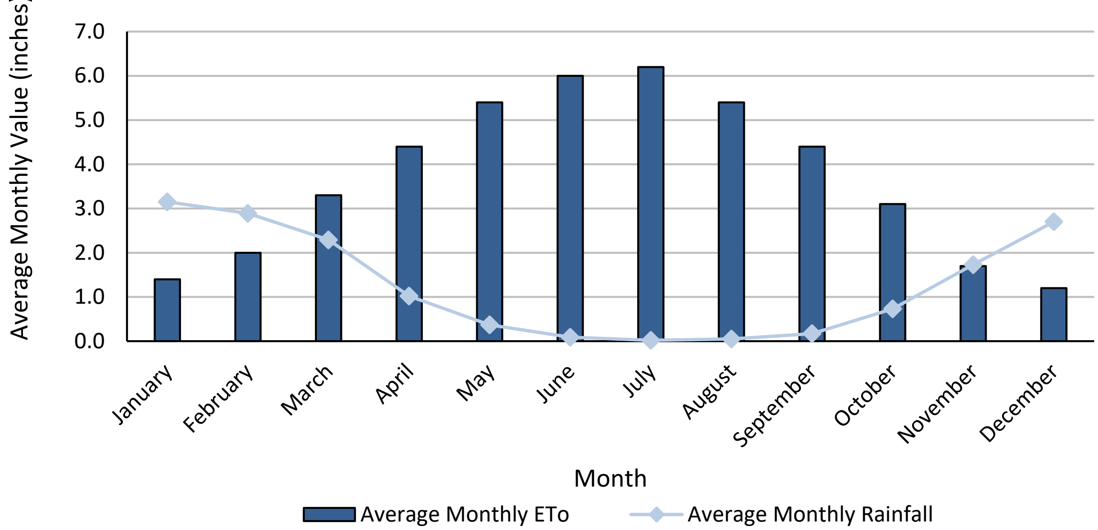
The City's service area is located within a region characterized by a Mediterranean climate with cool, wet winters and warm, dry summers. As shown in Table 3-4 and the associated chart, rainfall in the area averages 15.2 inches per year and is generally confined to the wet season from late October to early May. The average reference evapotranspiration (ETo) for the region is 44 inches per year. The ETo is a standard measurement related to the water demand by plants in a specific region. Because the average annual ETo is approximately 30 inches more than the average annual precipitation, and because 90% of the annual precipitation occurs between the months of November and April, growing turf or other plantings in this region requires a significant amount of irrigation during the dry season. Although there is limited landscaping in the City's service area, the City does experience seasonal peaks in demand that are attributable to irrigation.

Table 3-4 Average Monthly Climate Characteristics

Month	Average Temperature Min (°F)	Average Temperature Max (°F)	Standard Average Eto (inches)	Average Rainfall (inches)
January	38.5	57.4	1.4	3.15
February	41.3	61.1	2.0	2.89
March	43.1	64.2	3.3	2.29
April	44.7	68.4	4.4	1.02
May	48.5	72.9	5.4	0.37
June	52.5	77.4	6.0	0.09
July	54.9	78.4	6.2	0.02
August	54.8	78.4	5.4	0.05
September	52.6	78.3	4.4	0.17
October	48.0	73.0	3.1	0.73
November	42.6	64.3	1.7	1.73
December	38.2	57.8	1.2	2.70
Annual	**46.6**	**69.3**	**44**	**15.2**

NOTES:
(a) Temperature and precipitation data are from the Western Regional Climate Center for Station #046646 PALO ALTO from 1 September 1953 to 4 June 2016.
(b) Reference evapotranspiration data for Union City station #171 are from the Department of Water Resources, California Irrigation Management Information System.

Chart 3-4 Average Monthly Climatic Conditions



3.3.1 Climate Change Considerations

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

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

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

The Sea Level Rise Vulnerability Assessment completed in 2018 (San Mateo County, 2018) is the first step of the Sea Change San Mateo County Initiative and provides an overview of the risk within the County from current and future flooding. The assessment identified built and natural assets in the City that are vulnerable, including stormwater, power, and wastewater infrastructure.

In 2019, as a result of the Sea Change convenings, the cities and County of San Mateo formed a Flood and Sea Level Rise Resiliency District to address sea level rise, flooding, coastal erosion, and large-scale storm water infrastructure improvements through integrated regional planning, investment, and project implementation.

Chapters 4, 6, and 7 of this Plan discuss the potential impacts of climate change on water demand and water sources. As detailed in Chapter 9 of this Plan, the City has established robust water conservation programs to increase drought resiliency. The City continues to plan for future water needs and to enhance the resiliency of its water system.

3.4 Water Distribution System

The City's water distribution system and current and planned groundwater production wells are described in the following sections.

3.4.1 Distribution System

The City obtains SFPUC Regional Water System (RWS) water through three turnouts off SFPUC Bay Division Pipelines 1 and 2. The turnouts are located on the aqueduct near Willow Road, O'Brien Drive, and University Avenue. Treated water is supplied from the SFPUC RWS within one pressure zone. Pressure-regulating valves at each turnout reduce the pressure as it enters the distribution system. From the turnouts, water flows through the City's distribution system, which includes a network of 1½-inch to 12-inch diameter pipes.

The City currently has three metered interties with other water systems: two one-way interties with Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company and one intertie with the City of Menlo Park[5]. The City previously had an intertie with the City of Palo Alto and is exploring the option of constructing an intertie in the future. There is currently no storage within the City's water distribution system.

3.4.2 Groundwater Wells

The City currently owns and operates one groundwater well located at the intersection of Gloria Way and Bay Road. The "Gloria Way Well" was constructed by the East Palo Alto County Water District in 1981. Use of the well for potable purposes ceased shortly thereafter due to customer complaints related to elevated concentrations of manganese. In 2018, the City completed construction of an iron and manganese treatment facility at the Gloria Way Well so it could be used as a potable water source. Since completion, the City has only used the well intermittently but plans to operate it on a more regular basis in the future.

As described in more detail in Section 6.2, the City is currently working on installing an emergency potable water supply well at the Pad D site at the corner of Clarke Road and East Bayshore Drive (i.e., the "Pad D Well").

[5] The City has seven additional interties with Menlo Park, however they are unmetered and currently valved off.

4. WATER USE CHARACTERIZATION

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

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

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

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

(I) Agricultural.

(J) Distribution system water loss.

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

For the purposes of this Urban Water Management Plan (UWMP or Plan), potable water demand is defined as the volume of potable water that the City of East Palo Alto (City or East Palo Alto) purchases from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) or produces from its well. Among other things, water demand is dependent on climate, population, industry, and the types of development present in a community. Sections 4.1 and 4.2 describe the historical and projected water demands for the residential, commercial, industrial, and institutional sectors within the City service area (as described per California Water Code [CWC] §10631(d)(1)(A) though (E) and (J)). As described in Section 4.3, this discussion does not include demands for sales to other agencies, saline water intrusion barriers, and agricultural sectors (CWC §10631(d)(1) water use sectors (F) through (I)) as they are not applicable or present within the City service area.

4.1 Historic and Current Total Water Demand

All demands within the City service area are currently met with potable water. The current and historical total water demands include the water consumed by metered accounts in the service area (metered water consumption) and the water that is lost within the distribution system or otherwise unaccounted for (i.e., losses).

Table 4-1 and the associated charts show the City's potable water demand and per capita water use between 2010 and 2020. Before the 2013-2016 drought, the City's per capital potable water use was about 80 gallons per capita per day (GPCD). The drought then caused local and state agencies (i.e., the

State Water Resources Control Board [SWRCB][6]) to issue mandatory water use restrictions which led to a significant decline in water use. The City saw a 28.8% reduction between 2013 and 2016 for the compliance period of June through December.[7] Water demand in 2016 was at a ten-year low between 2010 and 2020. Since 2016, water use rebounded slightly to 60 GPCD, but has not returned to pre-drought water use levels.

Overall, the City's per capita water use is significantly lower than the average per capita water use across all Bay Area Water Supply and Conservation Agency (BAWSCA) agencies and throughout the state.

[6] On July 28, 2014, the SWRCB adopted emergency regulations to mandate water agencies, including East Palo Alto, to implement their Water Shortage Contingency Plan and minimum actions to reduce outdoor water use. On May 5, 2015, SWRCB adopted Resolution 2015-0032 to mandate further minimum actions by water suppliers and their customers to reduce potable water use into 2016 and assigns a mandatory water conservation savings goal to each water supplier based on their residential water use. On February 2, 2016, the SWRCB voted to extend the reduction targets through October 2016. East Palo Alto has a SWRCB-mandated reduction target of 16%.

[7] SWRCB, Water Conservation Portal - Conservation Reporting; June 2015 - December 2015 Cumulative Savings and Urban Water Supplier Conservation Compliance Dataset and June 2014 - December 2015 Urban Water Supplier Report Dataset:

http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml

Table 4-1 Historical and Current Potable Water Demand and Population

Year	Potable Water Demand	Service Area Population	Per Capita Potable Water Use (GPCD)
2010	630	22,916	75
2011	646	22,991	77
2012	679	23,170	80
2013	756	23,465	88
2014	607	23,562	71
2015	573	24,424	64
2016	514	24,726	57
2017	550	25,028	60
2018	566	25,331	61
2019	556	25,633	59
2020	572	25,935	60

NOTES:
(a) Unless otherwise noted, volumes are in units of MG.
(b) Detailed historical and current water demand data from 2010 through 2020 are documented in Table 4-1. Demands are based on purchases from SFPUC, on a fiscal year basis.
(c) Service area population data from 2010 through 2015 are estimated from the City's 2015 UWMP. Service area population in 2020 is detailed in Table 3-1. Service area population between 2015 and 2020 are estimated to be linearly interpolated.
(d) Per capita potable water demand is calculated by dividing the total annual potable water demand by the service area population and the number of days in a year.

Chart 4-1A Historical and Current Potable Water Demand and Population

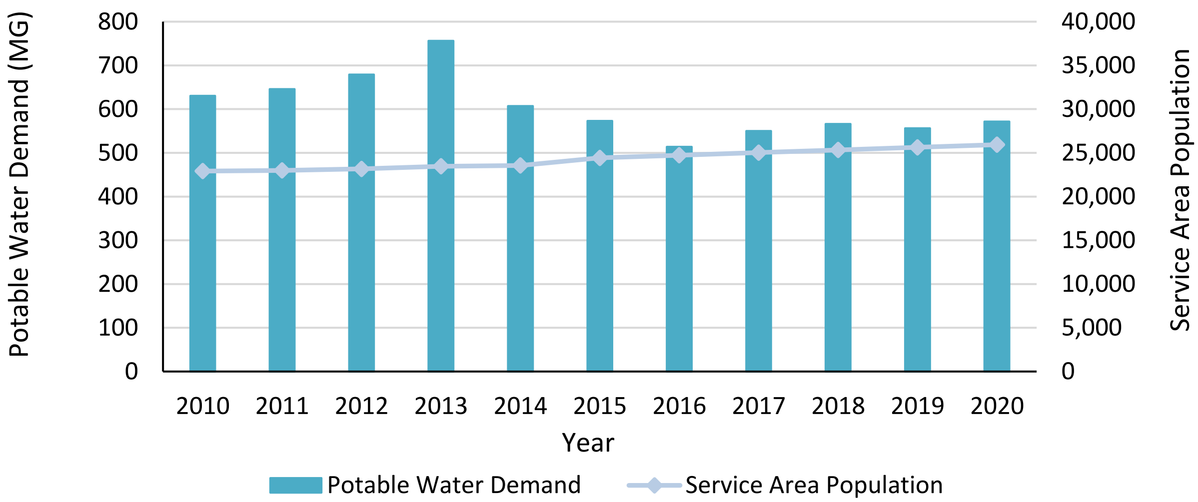
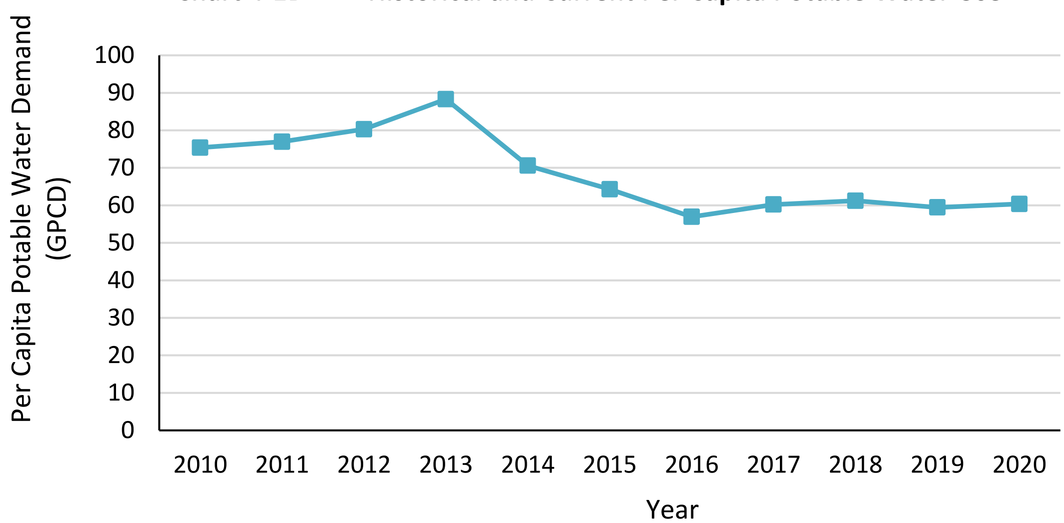


Chart 4-1B Historical and Current Per Capita Potable Water Use



4.1.1 Current and Historical Potable Water Demand

Potable water demand within the City's service area is measured using water meters that are installed at each customer account. Records of current and historical water use at each account are maintained by Veolia North America (Veolia). Water demand within the City's service area is tracked and reported on a monthly basis for the following sectors:

- Residential: Combined Single Family and Multi-Family meters.
- Commercial: Includes commercial customers.
- Industrial: Includes industrial customers.
- Institutional/Governmental: Includes meters serving City sites and other institutional meters; and
- Other: Includes fire services and temporary meters for construction.

As shown in Table 4-2 and associated charts, the residential sector accounted for an average of approximately 71% of the potable water demand in the City's service area between 2016 and 2020. The City's commercial, industrial, and institutional (CII) accounts accounted for approximately 20% of potable water demand for the 2016-2020 period. The commercial sector accounted for most of the City's CII demand (18%), while the industrial and institutional/governmental sectors each accounted for approximately 1% of the total water demand. Since irrigation demand is not tracked as a separate water demand sector, water that is used for irrigation is embedded in the residential and CII water demands presented in Table 4-2. Section 4.7 estimates indoor and outdoor water use in the context of compliance with forthcoming urban water use objectives.

Table 4-2 Demands for Potable and Non-Potable Water - Actual (DWR Table 4-1)

Use Type	Additional Description *(as needed)*	Level of Treatment When Delivered	Volume 2016	Volume 2017	Volume 2018	Volume 2019	Volume 2020
Single Family		Drinking Water	460	374	369	366	400
Commercial		Drinking Water	51	89	96	157	98
Industrial		Drinking Water	0	6	6	5	5
Institutional/Governmental		Drinking Water	0	7	7	11	10
Losses		Drinking Water	3	73	84	16	58
Other	Fire Service	Drinking Water	0	1	0	0	1
Other	Portable	Drinking Water	0	0	4	1	0
		TOTAL	514	550	566	556	572

NOTES:
(a) Volumes are in units MG.
(b) Single-family demand includes total residential water demand. The City's projected water demands do not specify demands between single-family and multi-family.
(c) Water demand was provided through various City records. Water demand for FY 16, 17, and 18 was recorded in the DSS Model and water demand for FY19, and 20 were provided by Veolia.
(d) Losses are estimated as the difference between total demand and metered consumption, and thus includes unmetered water consumption and distribution system water losses.

Chart 4-2A Annual Water Demand by Sector: 2016-2020

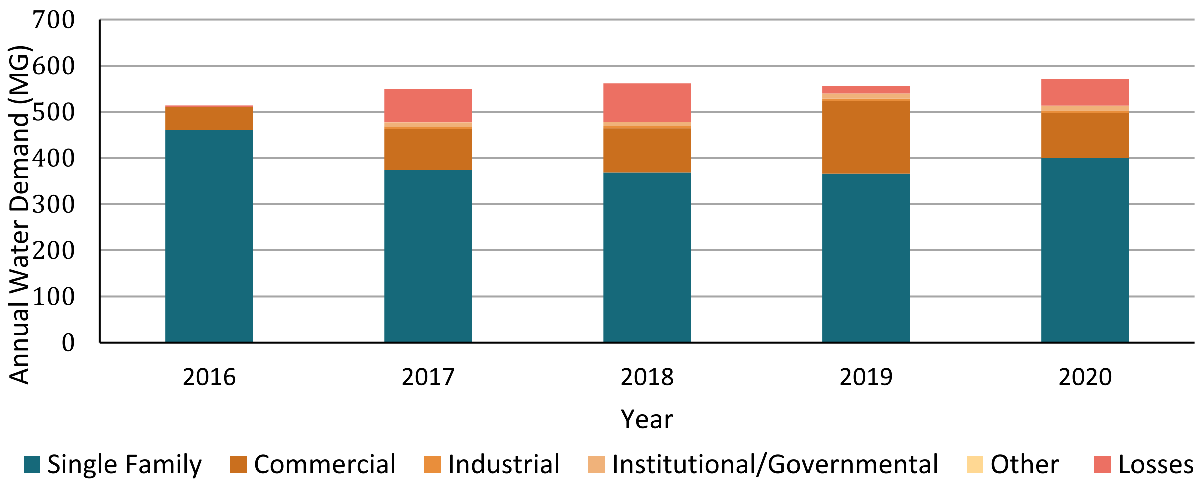
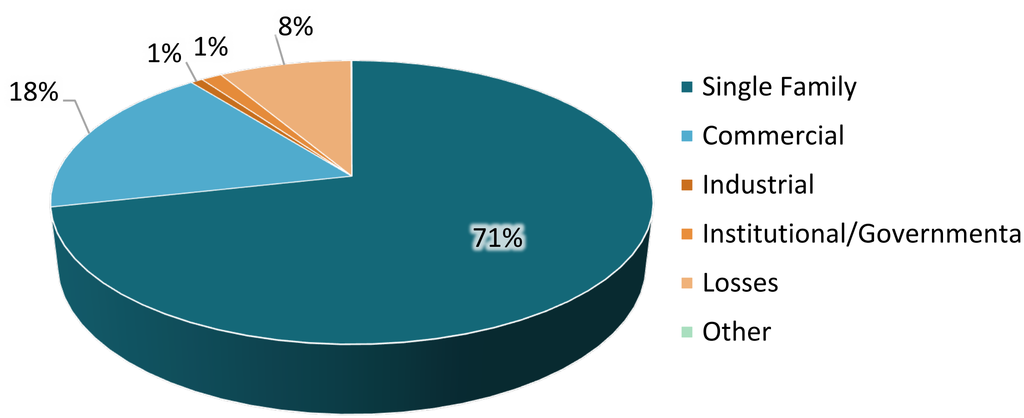


Chart 4-2B Percentage of Total Water Demand by Sector: 2016-2020



4.1.2 <u>Current and Historical Non-Potable Water Demand</u>

The City previously used Gloria Way Well for non-potable purposes such as street cleaning and construction dust control. In 2018, the City installed an iron and manganese treatment system and water supplied from Gloria Way Well enters the City's potable water system. Groundwater supply is further discussed in Section 6.2. There are no current or historical water demands that are met with recycled water supplies within the City's service area.

4.1.3 Distribution System Water Loss

☑ ***CWC § 10631 (3)***

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

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

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

Distribution system water losses are the physical water losses from the water distribution system and the supplier storage facilities, up to the point of customer consumption. The total differential between water supply and metered water use is categorized as unaccounted-for-water in Table 4-2 and discussed in Section 4.1.1. However, this category includes unbilled water uses such as system flushing, leak repair flushing, hydrant leaks, and street sweeping. In order to isolate the water loss attributed to the distribution system, the City has estimated water losses using the Department of Water Resources (DWR) Water Audit Method.

Of the total demand of 550 MG in 2017, 477 MG were attributable to metered consumption and 73 MG were estimated to be the non-revenue water demand, which includes unmetered consumption and distribution system water loss. Of the 73 MG of non-revenue water in 2017, 50 MG was estimated to be attributed to water losses from the American Water Works Association (AWWA) Free Water Audit Report (see Table 4-3). Metering of the City's distribution system is further discussed in Section 9.2.2.

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

Reporting Period Start Date	Volume of Water Loss
07/2016	50
NOTES: (a) Volumes are in units of MG (b) Water losses for FY 2016-17 are reported in the City's AWWA Water Loss Audit Report.	

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

4.2 Projected Total Water Demand

Per CWC §§10631(d)(1), potable and non-potable water demand projections are discussed in the following sections.

4.2.1 Projected Potable Water Demand

Future potable water demands within the City's service area are estimated as the projected water demands associated with population and employment growth within the City's service area. The demand estimation methodology and associated demand estimates are described below and presented in Table 4-4 in five-year increments from 2025 through 2045.

In 2020, future water demands based on the General Plan Update WSA (IRM, 2015) were projected by Bay Area Water Supply and Conservation Agency (BAWSCA) on behalf of East Palo Alto in the *Regional Water Demand and Conservation Projections Report* (BAWSCA, 2020). Future water demands were projected using the Demand Management Decision Support System Model (DSS Model)[8] and were based on population and employment projections within the City's service area, which were in turn developed from the General Plan Update and associated Water Supply Assessment (WSA).

A detailed description of the DSS Model and the associated water demand and conservation projection methodology is provided in the *Regional Water Demand and Conservation Projections Report* (BAWSCA, 2020). A brief description of BAWSCA's 2020 demand projections is provided below.

> In June 2020, BAWSCA completed the Regional Water Demand and Conservation Projections Report (Demand Study). The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each wholesale customer using a common methodology to support both regional and individual agency planning efforts and compliance with the new statewide water efficiency targets required by Assembly Bill (AB) 1668 and Senate Bill (SB) 606.
>
> Through the Demand Study process, BAWSCA and the wholesale customers (1) quantified the total average-year water demand for each BAWSCA member agency through 2045, (2) quantified passive and active conservation water savings potential for each individual wholesale customer through 2045, and (3) identified 24 conservation programs with high water savings potential and/or member agency interest. Implementation of these conservation measures, along with passive conservation, is anticipated to yield an additional 37.3 MGD of water savings by 2045. Based on the revised water demand projections, the identified water conservation savings, increased development and use of other local supplies by the wholesale customers, and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2045.

[8] The DSS model was provided to East Palo Alto by Maddaus Water Management Inc. in June 2020, as a modified version of the model provided in BAWSCA's *Regional Water Demand and Conservation Projections Report*.

> As part of the Demand Study, each wholesale customer was provided with a demand model that can be used to support ongoing demand and conservation planning efforts, including UWMP preparation.

As described further in Section 4.2.4, passive water conservation savings associated with existing water uses in the City's service area have been subtracted from the water demand projections. The total projected potable water demand in the City's service area, accounting for this projected passive conservation savings is estimated to be 1,078 MG in 2045, as shown in Table 4-4 and the associated chart.

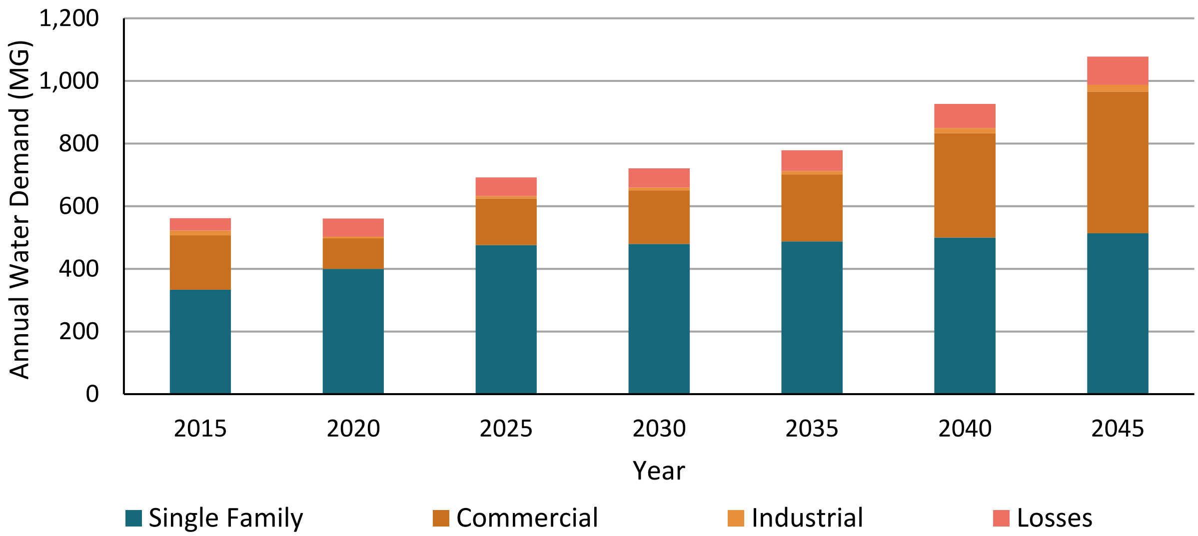
There is a significant increase in the projected potable water demand between 2020 and 2045, (89% increase relative to the actual 2020 water demand of 572 MG). Over the same period, population is estimated to increase by 28% and jobs are expected to increase by approximately 246% in the City's service area. Total projected potable water demand for each water use sector within the City's service area is shown in five-year increments through 2045 in Table 4-4 and the associated chart.

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

Use Type	Additional Description *(as needed)*	Projected Water Use				
		2025	2030	2035	2040	2045
Single Family		476	479	487	500	514
Commercial		149	171	214	334	452
Industrial		8	9	11	16	22
Losses		59	62	66	77	90
	TOTAL	692	721	779	927	1,078

NOTES:
(a) Volumes are in units of MG.
(b) Projected demand based on City's General Plan Update and associated Water Supply Assessments.
(c) Single-family demand includes total residential water demand. The City's projected water demands do not specify demands between single-family and multi-family.
(d) Totals may not sum due to rounding.
(e) Projected demands include passive savings.

Chart 4-4 Current and Projected Water Demand by Sector



4.2.2 Projected Non-Potable Water Demand

The City does not currently supply non-potable water to customers, nor does it currently have plans to use recycled water within its service area.

4.2.3 Water Use for Lower Income Households

☑ ***CWC § 10631.1***

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

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

The potable water demands presented in Section 4.2.1 include projected future water use by lower income households. Per Health and Safety Code 50079.5, a lower income household is defined as a household with lower than 80% of the City's median income.

The Existing Conditions Report (Raimi and Associates, 2014) indicates that in 2011 there were 7,759 housing units within the City and that approximately 57% of these units served residents with less than 80% of the median income adjusted for family size. It is assumed that the service area includes the same general percentage of lower income households as is observed in the totality of the City. The City's 2015-2023 Housing Element (City of East Palo Alto, 2016b) projects that, per the Association of Bay Area

Government's Residential Housing Needs Allocation, 25% of future housing demands will serve residents with less than 80% of the median income. Therefore, it is assumed that approximately 57% of 2015 residential demand within the City's service area is associated with lower income households, and that 25% of additional, future residential water demand since 2015 is and will be associated with lower income households. Table 4-5 contains the estimated future water use by lower income households. These demands were included in the total potable water demand projections described above and shown in Table 4-5.

Table 4-5 Projected Potable Water Demand of Lower Income Households

Residential Type	Projected Potable Water Demand				
	2025	2030	2035	2040	2045
Lower Income Water Demand	226	227	229	232	235

NOTES:
a) Volumes are in units of MG.
b) Projected demands for lower income households were estimated as 57% of 2015 residential demands in addition to approximately 25% of additional, future residential demands.

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

☑ ***CWC § 10631 (d) (4)***

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

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

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

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

As affirmed in Table 4-6, both future water savings (discussed below) and lower income residential demands (discussed in Section 4.2.3) are included in the projections of future water use.

Table 4-6 Inclusion in Water Use Projections (DWR Table 4-5)

Are Future Water Savings Included in Projections?	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	Chapter 8 and 9
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES:	

"Passive conservation" refers to water savings resulting from actions and activities that do not depend on direct financial assistance or educational programs implemented by water suppliers. These savings result primarily from: (1) the natural replacement of existing plumbing fixtures with water-efficient models required under current plumbing code standards,[9] (2) the installation of water-efficient fixtures and equipment in new buildings and retrofits as required under CALGreen Building Code Standards, and (3) inclusion of low-water use landscaping and high-efficiency irrigation systems to minimize outdoor water use in new connections and projects in accordance with the State's Model Water Efficient Landscape Ordinance (MWELO).

"Active conservation" refers to water savings resulting from the City's implementation of water conservation programs, education programs, and the offering of financial incentives (e.g., rebates). The City's current and planned active conservation programs are discussed in Chapter 9.

The potable water demand projections discussed in Section 4.2.1 take into account passive conservation savings, as shown in Table 4-7 and the associated chart. Additional water savings are expected due to the City's active conservation efforts; however, for conservative planning purposes these conservation savings are not included in the total potable water demand projections. As can be seen in Table 4-7, by 2045, it is estimated that passive conservation savings will reduce total projected water demand by 171 MG within the City's service area (i.e., the total 2045 demand will be reduced from 1,249 MG to 1,078 MG). An additional 22 MG of water savings may be achieved through active conservation.

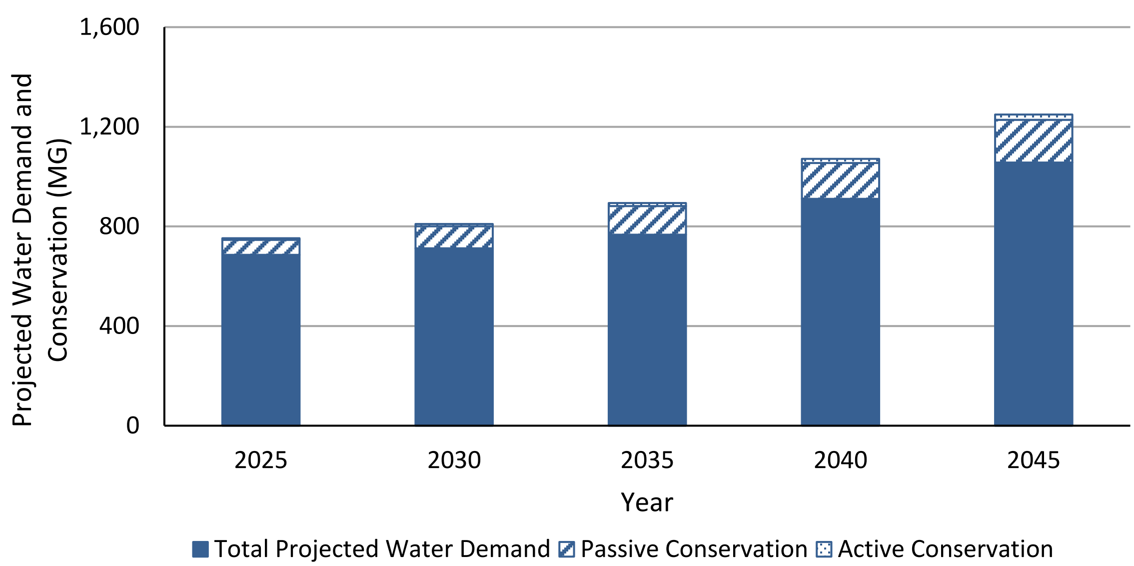
[9] Including the California Energy Commission Title 20 appliance standards for toilets, urinals, faucets, and showerheads. The appliance standards determine what can be sold in California and therefore will impact both new construction and replacement fixtures in existing homes.

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

Water Conservation Type	Projected Potable Water Demand				
	2025	2030	2035	2040	2045
Projected Water Demand	753	810	894	1,071	1,249
Projected Water Conservation					
Passive Conservation	61	89	115	144	171
Active Conservation	7	9	12	17	22
Projected Water Demand after Passive Conservation Savings	692	721	779	927	1,078
Projected Water Demand after Passive and Active Conservation Savings	686	712	767	910	1,056

NOTES:
(a) Projected water demands and conservation were estimated using the updated DSS Model, provided by Maddaus Water Management Inc. June 2020, as well as population and employment projections documented in Table 3-1 and 3-2.
(b) Total water demand is the sum of metered water consumption and losses.

Chart 4-7 Projected Water Demand and Conservation



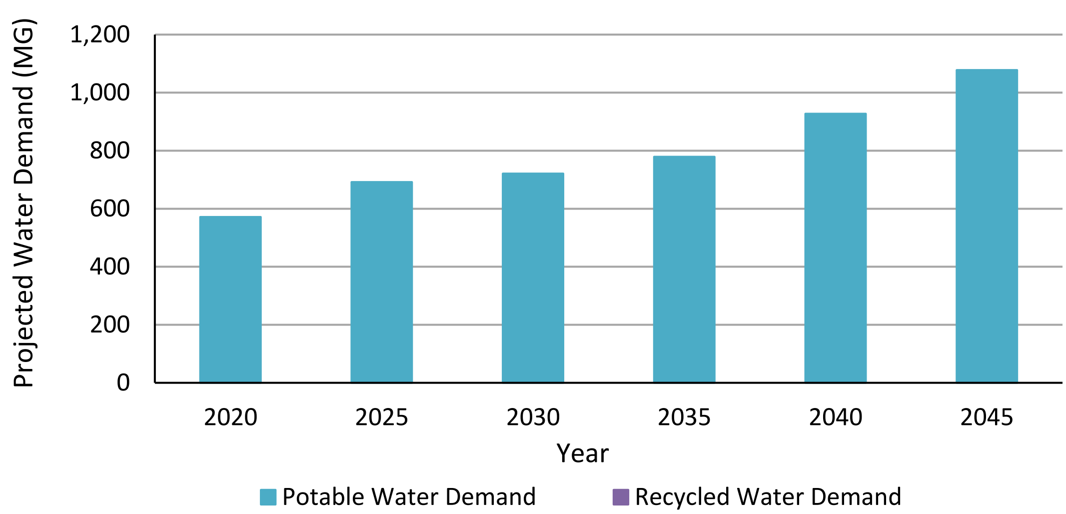
4.2.5 Projected Total Water Demand

As shown in Table 4-8, the projected total water demand is the same as the projected potable water demand described in Section 4.2.1 because the City does not serve recycled water.

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

	2020	2025	2030	2035	2040	2045
Potable Water, Raw, Other Non-potable	572	692	721	779	927	1,078
Recycled Water Demand	0	0	0	0	0	0
Optional Deduction of Recycled Water Put Into Long-Term Storage	0	0	0	0	0	0
TOTAL WATER USE	572	692	721	779	927	1,078
NOTES: (a) Volumes are in units of MG.						

Chart 4-8 Current and Projected Total Water Use



4.3 Water Use Sectors Not Included in the Demand Projections

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

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

4.3.6 Landscape

Landscape irrigation does occur within the City, but the City does not currently track landscape irrigation as a separate water use sector. Therefore, water used for landscape irrigation is included in the historical demands and demand projections for the residential and CII water use sectors.

4.3.1 Sales to Other Agencies

Under the terms of the dissolution of the East Palo Alto County Waterworks District, the City is required to transfer up to 243 AFY of SFPUC RWS water to the City of Menlo Park. The City does not consider water that is received on behalf of, and immediately sold to, the City of Menlo Park to be a part of its water supply or demand.

4.3.2 Saline Water Intrusion Barriers, Groundwater Recharge, and Conjunctive Use

The City does not use water for saline water intrusion barriers and does not currently participate in active groundwater recharge activities or a conjunctive use program.

4.3.3 Agricultural

The City does not sell water to agricultural customers and does not expect to in the future.

4.4 Potential Additional Future Development

Based on information provided by the City on 14 December 2020, three development projects in the early planning, pre-approval stage and are therefore not explicitly included in the demand projections described in Section 4.2. The EPA Waterfront Project, Harvest Properties, and Four Corners 1675 Bay Rd are mixed-use developments with a planned combined area of 2,758,000 square feet (sq ft) of commercial development and 440 residential units. The City is developing a Specific Plan/General Plan amendment and associated California Environmental Quality Act (CEQA) documentation that will address the timing, water demand, and supply availability for these potential developments.

4.5 Climate Change Impacts to Demand

☑ ***CWC § 10635(b)***

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

Hotter and drier weather may lead to an increased demand in landscape irrigation. The DSS Model assesses the sensitivity of the City's water demand to weather and then incorporates predicted weather and climate change data into demand projections. Therefore, the demand projections presented in Section 4.2 includes considerations of climate change.

A description of the weather and climate change data incorporated into the DSS Model is provided Section 3.6 of the BAWSCA Demand Study (BAWSCA, 2020). Based on data published by International Panel on Climate Change and the California's Fourth Climate Change Assessment San Francisco Bay Area Summary Report, a predicted annual mean temperature increase of 1.7°F was incorporated into the DSS Model demand forecast for the time period of 2019 to 2045.

4.6 Coordinating Water Use Projections

☑ ***CWC § 10631 (h)***

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

The City provides the SFPUC with water use projections annually as part of reporting for the BAWSCA Annual Surveys and other BAWSCA-led water demand and supply coordination efforts, as dictated by the 2009 Water Supply Agreement. As part of the coordination effort for the 2020 UWMP, and in compliance with CWC Section 10631(h), the City supplied BAWSCA with its water demand projections through 2045 for transmittal to the SFPUC.[10]

[10] Email from the City to BAWSCA dated April 1, 2021.

4.7 Urban Water Use Objectives

☑ ***CWC § 10609.20***

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

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

☑ ***CWC § 10609.22***

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

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

☑ ***CWC § 10609.24***

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

(1) The urban water use objective calculated pursuant to Section 10609.20 along with relevant supporting data.

(2) The actual urban water use calculated pursuant to Section 10609.22 along with relevant supporting data.

(3) Documentation of the implementation of the performance measures for CII water use.

(4) A description of the progress made towards meeting the urban water use objective.

(5) The validated water loss audit report conducted pursuant to Section 10608.34.

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

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

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

One of the components for calculating the future water use objectives is provided for in CWC § 10609.4(a), which states "(1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily. (2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be the greater of 52.5 gallons per capita daily or a standard recommended pursuant to subdivision (b). (3) Beginning January 1, 2030, the standard for indoor residential water use shall be the greater of 50 gallons per capita daily or a standard recommended pursuant to subdivision (b)."[11] Table 4-9 shows an estimate of the City's projected future per capita residential water use, broken out by estimated indoor and outdoor water use, provided from the DSS Model projections.

The City has one of the lowest per capita water demand among BAWSCA member agencies. Based on these estimates, per capita indoor residential potable water use is expected to be at or below the indoor use standards presented in the legislation. Although indoor residential water use is expected to be within the indoor residential water use standard, it should be noted that because standards have not yet been developed for the outdoor water use or water loss components of the future water use objectives, it cannot be known whether projected demands for the City will be in compliance with the pending requirements.

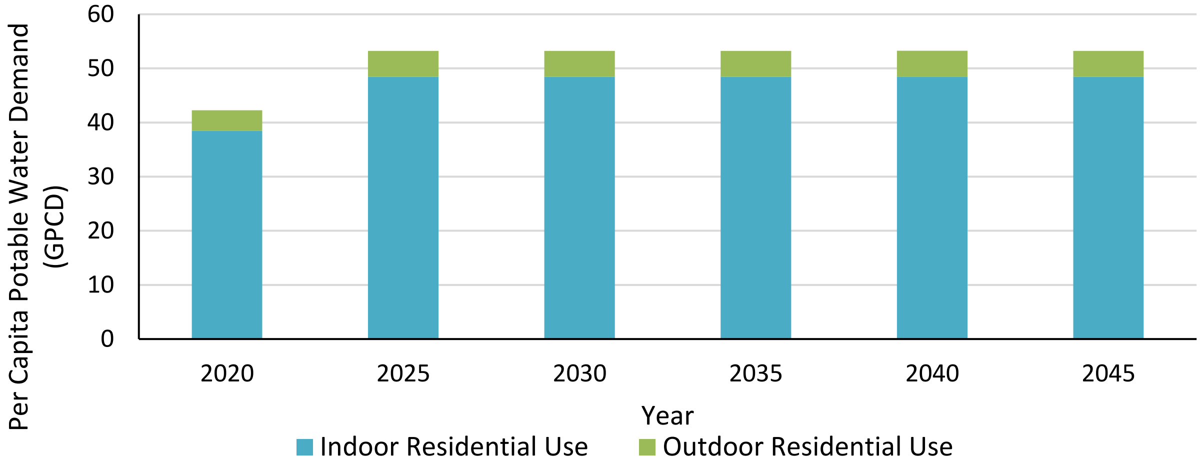
Table 4-9 Current and Projected Residential Per Capita Water Use

Year	Residential Potable Water Demand	Service Area Population	Per Capita Residential Potable Water Use (GPCD)	Approximate Per Capita Indoor Residential Potable Water Use (GPCD)	Approximate Per Capita Outdoor Residential Potable Water Use (GPCD)
2020	400	25,935	42	38	4
2025	529	27,215	53	48	5
2030	556	28,589	53	48	5
2035	584	30,062	53	48	5
2040	615	31,646	53	48	5
2045	646	33,230	53	48	5

NOTES:
(a) Unless otherwise noted, volumes are in units of MG.
(b) See Table 4-4 for more details on projected water demand.
(c) See Table 3-1 for more details on projected service area population.
(d) Per capita potable water demand is calculated by dividing the annual potable water demand by the service area population and the number of days in a year.
(e) Projected indoor and outdoor water demand was estimated using the updated DSS Model, provided by Maddaus Water Management Inc. June 2020.

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

Chart 4-9 Current and Projected Indoor and Outdoor Residential Per Capita Potable Water Use



5. SB X7-7 BASELINE, TARGETS, AND 2020 COMPLIANCE

☑ ***CWC § 10608.20***

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

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

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

The Water Conservation Act of 2009 (Water Conservation Act) directed the Department of Water Resources (DWR) to develop technical methodologies and criteria to ensure the consistent implementation of the Water Conservation Act and to provide guidance to urban retail water suppliers in developing baseline and compliance water use. The Water Conservation Act was incorporated into Division 6 of the California Water Code (CWC) commencing with Section 10608 of Part 2.55. The methodologies for developing baseline and compliance water use are established in *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water, California Department of Water Resources Division of Statewide Integrated Water Management Water Use and Efficiency Branch*, March 2016 update (Methodologies; DWR, 2016)

The CWC §10608.20 and §10608.28 allow water suppliers the choice of complying individually or regionally by mutual agreement with other water suppliers or regional agencies. The DWR has also developed a methodology for regional compliance. The following calculation methodologies have been developed and are described in Methodologies (DWR, 2016):

- Methodology 1: Gross Water Use
- Methodology 2: Service Area Population
- Methodology 3: Base Daily Per Capita Water Use
- Methodology 4: Compliance Daily Per Capita Water Use
- Methodology 5: Indoor Residential Use
- Methodology 6: Landscaped Area Water Use
- Methodology 7: Baseline Commercial, Industrial, and Institutional Water Use
- Methodology 8: Criteria for Adjustments to Compliance Daily Per Capita Water Use
- Methodology 9: Regional Compliance

Baselines and water use targets for the City of East Palo Alto's (City or East Palo Alto) service area were presented in the 2010 Urban Water Management Plan (UWMP or Plan) in response to the Water Conservation Act. Per requirements of the DWR, the 2015 UWMP included an update to the baseline and water use target calculations using 2010 United States Census (Census) data and analyzed the City's compliance with its 2015 interim water use target. In this 2020 UWMP, water use targets and 2020 compliance data are summarized in Table 5-1 through Table 5-3. Detailed calculations are included in Appendix D.

5.1 Service Area Population

☑ ***CWC § 10608.20 (e)***

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

☑ ***CWC § 10608.20 (g)***

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

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

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

In the 2015 UWMP, the City modified its baseline and target gallons per capita per day (GPCD) values from the 2010 UWMP to meet DWR's requirement of using 2010 Census data for its baseline population calculations. In 2010, the population for the City's service area was estimated using the persons-per-connection method described in Appendix A of DWR's Methodologies for Calculating Baseline and Compliance Urban Per Capita Water (DWR, 2016). Census data for 2000 was compared to City records to determine a persons-per-connection factor, which was then applied to the number of connections in each year over the period 2001 through 2010 to estimate the City's service area population. For the 2015 UWMP update, the City used the DWR Population Tool to estimate service area population. This tool applies the persons-per-connection methodology and incorporates 2010 Census data. The 2010 service area population was estimated to be 22,916, approximately 82% of the total City-wide population according to 2010 Census data.

As shown in Table 5-1, The population in 2020 for the service area within City limits was estimated to be 25,935 based on data and projections in the City's General Plan (City of East Palo Alto, 2016a). This estimate was roughly confirmed when compared to the Department of Finance (DOF) population estimate for the entire City (30,630), adjusted to exclude populations within City limits served by the Palo Alto Park Mutual Water Company (approximately 2,900) and the O'Connor Tract Co-operative Water Company (approximately 900)[12]. This adjusted total is estimated to be 26,830, or approximately 3% greater than the General Plan estimate of 25,935. Given the similarities between these estimates, and the approximate nature of the estimate, the General Plan population was selected to be used for SB X7-7 2020 compliance

[12] Population estimates for Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company were provided by each supplier and adjusted by their approximate areas within City limits.

calculations in order to maintain consistency amongst planning documents. Additionally, as shown in Section 5.4, the City is well below its 2020 Target and use of either population estimate would not affect the City's compliance.

Table 5-1 SB X7-7 Service Area Population (SB X7-7 Table 3)

Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	23,399
Year 2	2002	23,338
Year 3	2003	23,685
Year 4	2004	24,012
Year 5	2005	24,319
Year 6	2006	24,115
Year 7	2007	23,808
Year 8	2008	23,499
Year 9	2009	23,384
Year 10	2010	22,916
5 Year Baseline Population		
Year 1	2006	24,115
Year 2	2007	23,808
Year 3	2008	23,499
Year 4	2009	23,384
Year 5	2010	22,916
2020 Compliance Year Population		
2020		25,935
NOTES:		

5.2 Baseline Water Use

Water suppliers must define a 10- or 15-year base (or baseline) period for water use that is then used to develop their future target per capita water use. Water suppliers must also calculate water use over a 5-year baseline period and use that value to determine a minimum required reduction in water use by 2020. Utilizing a 15-year baseline period is only allowed for water suppliers that meet at least 10% of their 2008 measured retail water demand through recycled water; East Palo Alto does not meet this criterion and thus selected a 10-year baseline. In the 2015 UWMP, the City updated the per capita water use calculations to use the revised population estimates described in Section 5.1 and the historical potable water demand information presented in the 2010 UWMP.

The 10-year baseline water use was calculated as 82 GPCD using gross per capita water usage data (calculated as total water entering the City's water distribution system divided by total population) for the 10-year period between 1 July 2000 and 30 June 2010. The 5-year baseline water use was also calculated as 82 GPCD using per capita water usage data for the 5-year period between 1 July 2005 and 30 June 2010. The updated 5- and 10-year baseline water uses are shown in Table 5-2 and in Appendix D.

5.3 Water Use Targets

☑ ***CWC § 10608.20 (b)***

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

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

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

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

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

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

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

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

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

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

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

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

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

☑ ***CWC § 10608.22***

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

Water suppliers were required to calculate their 2020 water use targets (Targets) and compare their actual water use in 2020 with the calculated Targets to assess compliance. The Water Conservation Act requires that water suppliers calculate their Targets using one of the following four methods:

- Method 1: Eighty percent of the water supplier's baseline per capita water use;
- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use, landscaped area water use, and commercial, industrial, and institutional uses;
- Method 3: Ninety-five percent of the applicable state hydrologic region target as stated in the State's 20x2020 Water Conservation Plan, dated February 2010; or
- Method 4: Total savings subtracted from baseline water use. Savings include metering savings, residential savings, commercial, industrial, and institutional savings, and landscape and water loss savings.

The 2020 Target was adjusted in 2015 to achieve a minimum reduction in water use regardless of the target method (this is explained in Methodology 3). The CWC §10608.24 directs that water suppliers must compare their actual water use in 2020 with their calculated Target to assess compliance. In addition, as part of the 2015 UWMP water suppliers had to comply with an "Interim Target" in 2015 which was established as the midpoint between the baseline water use and the 2020 Target. The years 2015 and 2020 are referred to in the Methodologies as compliance years.

The City's 2020 Target was first calculated in 2010 using Method 3 and was then recalculated in its 2015 UWMP using updated service area population. The updated 2020 Target was 124 GPCD. Table 5-2, shows the City's 5- and 10-year baseline periods, the associated baseline water use in GPCD, and its 2020 target.

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

Baseline Period	Start Year	End Year	Average Baseline GPCD	Confirmed 2020 Target GPCD
10-15 year	*2001*	*2010*	*82*	*124*
5 Year	*2006*	*2010*	*82*	*124*
NOTES:				

5.4 2020 Target Compliance

☑ ***CWC § 10608.24 (b)***

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

☑ ***CWC § 10608.24 (d)***

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

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

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

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

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

☑ ***CWC § 10608.40***

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

The CWC §10608.24 (b) directs that water suppliers must calculate their actual water use in 2020 to determine whether or not they have met their 2020 Target. Per the Methodologies (DWR, 2016), there are several allowable adjustments that can be made to a supplier's 2020 per capita water use calculations as part of evaluating target compliance. However, no adjustments were made to the City's 2020 per capita water use calculations.

As described above, in 2020, actual water demand within the City's service area was 572 MG and the service area population was estimated to be 25,935. Therefore, the calculated per capita water use in 2020 was 60 GPCD, approximately 52% of the City's 2020 Target of 124 GPCD (see Table 5-3). Therefore, the City is in compliance with its 2020 Target.

Table 5-3 2020 Compliance (DWR Table 5-2)

2020 GPCD			2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020?
Actual 2020 GPCD	2020 TOTAL Adjustments	Adjusted 2020 GPCD *(Adjusted if applicable)*		
60	0		124	Y
NOTES:				

5.5 Water Use Reduction Plan

The actual water demand within the City's service area in FY 2019-20 was well below the 2020 Target. This is both due to water use cutbacks achieved during the recent drought and the conservation efforts that the City has supported during the past five years to reduce water use (see Section 9.3).

A partial rebound in water demand is expected to occur from 2020 to 2025. However, water demand is not expected to return to pre-drought demand. Per capita water demand is projected to be approximately 73 GPCD in 2025, which remains in compliance with the 2020 Target of 124 GPCD. This estimate is based on population projections described in Section 3.1.1 and the future water demand projections described in Section 4.2.

The City will continue to actively manage its per capita water use through implementation of demand management measures as discussed in Section 9.4. To the extent that the City develops additional recycled water supplies or individual development projects implement on-site water recycling, as discussed in Chapter 6, the projected future potable demands in 2045 are likely to be further reduced beyond the conservative estimates presented herein.

6. WATER SUPPLY CHARACTERIZATION

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

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

The City of East Palo Alto (City or East Palo Alto) purchases most of its potable water from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) in accordance with the Water Supply Agreement (WSA) between the City and County of San Francisco and Wholesale Customers in Alameda, San Mateo and Santa Clara Counties, that was approved by the SFPUC on 28 April 2009 and amended in November 2018. The City also uses a small amount of groundwater that is produced at a well owned and operated by the City, however it was not used during this reporting period.

To maintain consistency with the Urban Water Management Plans (UWMPs) prepared by the SFPUC and the other Bay Area Water Supply and Conservation Agency (BAWSCA) member agencies, much of the language describing the SFPUC wholesale water supply in the following sections is common language provided by BAWSCA, in coordination with the SFPUC.

6.1 Purchased or Imported Water

This section describes the sources of wholesale water provided by SFPUC, and the process for allocating water between SFPUC, BAWSCA, and wholesale customers.

6.1.1 Description of SFPUC RWS

Approximately 85% of the water supply to the SFPUC RWS originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project. The remaining 15% of the water supply to the SFPUC RWS originates locally in the Alameda and Peninsula watersheds and is stored in six different reservoirs in Alameda and San Mateo Counties. Details of the various components of the SFPUC RWS are provided below and are shown on Figure 6-1. Information regarding the Hetch Hetchy, Alameda, and Peninsula water systems is sourced from the SFPUC's 2020 UWMP and is provided verbatim below.

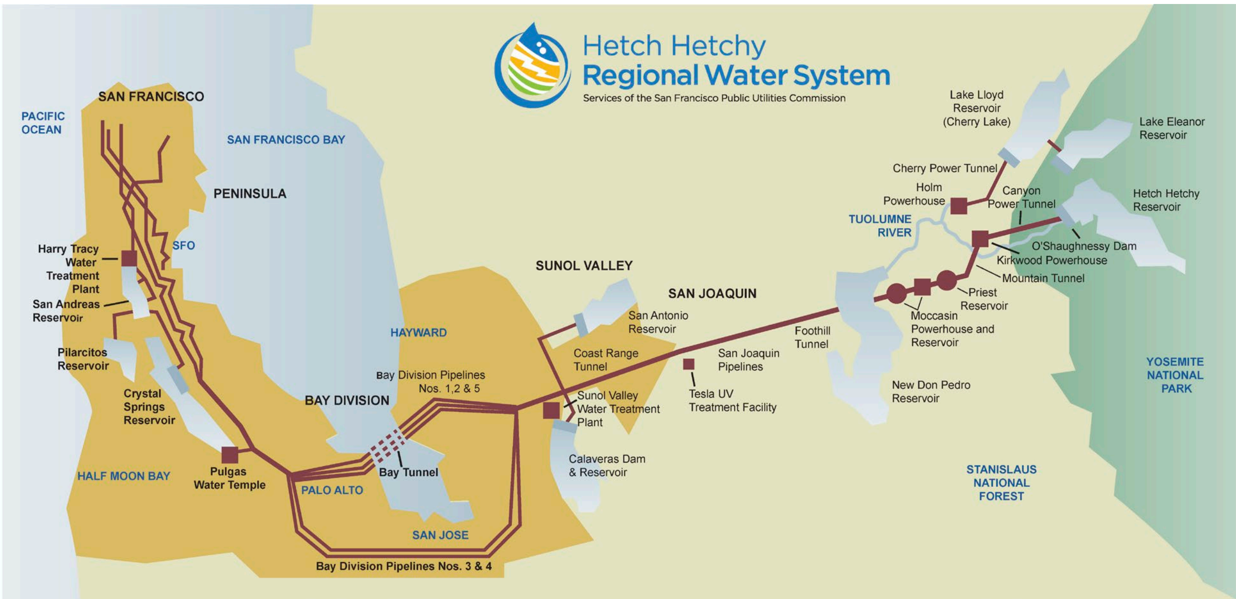


Figure 6-1 Regional Water System

Water Distribution

The RWS, shown on [Figure 6-1], consists of more than 280 miles of pipelines, 60 miles of tunnels, 11 reservoirs, five pump stations, and two water treatment plants. It includes the Hetch Hetchy Project and the Bay Area water system facilities. The Hetch Hetchy Project is generally composed of the reservoirs, hydroelectric generation and transmission facilities, and water transmission facilities from the Hetch Hetchy Valley west to the Alameda East Portal of the Coast Range Tunnel in Sunol Valley. Water system components of the Hetch Hetchy Project are also referred to as the Hetch Hetchy System. The local Bay Area water system is comprised of two parts—the Alameda System and the Peninsula System—generally consisting of the facilities west of the Alameda East Portal of the Coast Range Tunnel, including the 63,000-acre Alameda and Peninsula watersheds, storage reservoirs, two water treatment plants, and the distribution system that delivers water to both retail and wholesale customers. The Hetch Hetchy, Alameda, and Peninsula Systems are described in more detail below.

- Hetch Hetchy System: In the Hetch Hetchy System, water is diverted from Hetch Hetchy Reservoir into a series of tunnels and aqueducts from the Sierra Nevada to the San Joaquin Pipelines that cross the San Joaquin Valley to the Coast Range Tunnel, which connects to the Alameda System at the Alameda East Portal. Hetch Hetchy System water is disinfected at the Tesla Treatment Facility.
- Alameda System: The Alameda System includes two reservoirs, San Antonio Reservoir and Calaveras Reservoir, which collect water from the San Antonio Creek, Upper Alameda Creek, and Arroyo Hondo watersheds in Alameda County. San Antonio Reservoir also receives water from the Hetch Hetchy

System. Conveyance facilities in the Alameda System connect the Hetch Hetchy System and Alameda water sources to the Peninsula System. The BDPLs cross the South Bay to the Peninsula System delivering water to customers along the pipeline route. The Sunol Valley Water Treatment Plant (SVWTP) filters and disinfects water supplied from San Antonio Reservoir and Calaveras Reservoir.

- Peninsula System: The Peninsula System includes conveyance facilities connecting the Bay Division Pipelines to the in-City distribution system and to other customers on the Peninsula. Two reservoirs, Crystal Springs Reservoir and San Andreas Reservoir, collect runoff from the San Mateo Creek watershed. Crystal Springs Reservoir also receives water from the Hetch Hetchy System. A third reservoir, Pilarcitos Reservoir, collects runoff from the Pilarcitos Creek watershed and directly serves one of the Wholesale Customers, the Coastside County Water District (which includes the City of Half Moon Bay), along with delivering water to Crystal Springs and San Andreas Reservoirs. The Harry Tracy Water Treatment Plant (HTWTP) filters and disinfects water supplied from Crystal Springs Reservoir and San Andreas Reservoir before it is delivered to customers on the Peninsula and the in-City distribution system.

Water Treatment

The Hetch Hetchy Reservoir is the largest unfiltered water supply on the West Coast, and one of only a few large unfiltered municipal water supplies in the nation. The water originates from well-protected wilderness areas in Yosemite National Park, which flows down the Tuolumne River to Hetch Hetchy Reservoir. This water meets or exceeds all federal and State criteria for watershed protection. Water from Hetch Hetchy Reservoir is protected in pipes and tunnels as it is conveyed to the Bay Area, and requires pH adjustment to control pipeline corrosion and disinfection for bacteria control. Based on the SFPUC's disinfection treatment practice, extensive bacteriological quality monitoring, and high operational standards, the U.S. Environmental Protection Agency (USEPA) and the SWRCB Division of Drinking Water (DDW) determined that the Hetch Hetchy water source meets federal and State drinking water quality requirements without the need for filtration.

A new USEPA regulation took effect in 2012 requiring secondary disinfection for all unfiltered drinking water systems to control the waterborne parasite cryptosporidium. To comply with this regulation, the SFPUC completed construction of a new ultraviolet (UV) treatment facility in 2011. The Tesla Treatment Facility is a key component of the Water System Improvement Program (WSIP) and enhances the high-quality water from the RWS. The facility has a capacity of 315 mgd, making it the third largest UV drinking water disinfection facility in the U.S.

All water derived from sources other than Hetch Hetchy Reservoir is treated at one of two treatment plants: the SVWTP or the HTWTP. The SVWTP primarily treats water from the Alameda System reservoirs and has both a peak capacity and sustainable capacity of 160 mgd. Treatment processes include coagulation, flocculation, sedimentation, filtration, disinfection, fluoridation, corrosion control treatment, and chloramination. Fluoridation, chloramination, and corrosion control treatment can also be provided for the combined Hetch Hetchy System and SVWTP water at the Sunol

Valley Chloramination Facility. The HTWTP treats water from the Peninsula System reservoirs and has a peak capacity of 180 mgd and a sustainable capacity of 140 mgd. Treatment processes include ozonation, coagulation, flocculation, filtration, disinfection, fluoridation, corrosion control treatment, and chloramination. Major upgrades to the SVWTP were completed in 2013 and to the HTWTP in 2015.

Water Storage

The majority of the water delivered by the SFPUC is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada. Three major reservoirs collect runoff: Hetch Hetchy Reservoir, Lake Lloyd (a.k.a., Cherry Lake), and Lake Eleanor. A "water bank" in Don Pedro Reservoir is also integrated into system operations.[13] Don Pedro Reservoir, which is jointly owned and operated by Modesto Irrigation District and Turlock Irrigation District (the Districts), is located on the Tuolumne River downstream of the Hetch Hetchy System.

As a by-product of water delivery and water supply management, hydroelectric power is generated by the Hetch Hetchy Water and Power System. Water stored in Hetch Hetchy Reservoir is used for hydroelectric generation and also satisfies instream flow requirements when released downstream. Normally, only Hetch Hetchy Reservoir water supplies are exported to the Bay Area, while releases from Lake Eleanor and Lake Lloyd are used to satisfy instream flow requirements, satisfy Raker Act entitlements to the Districts downstream, and produce hydroelectric power. The Hetch Hetchy Water and Power System includes three major hydroelectric powerhouses along the Tuolumne River—Holm, Kirkwood, and Moccasin—that have a collective generating capacity of nearly 400 megawatts.

Downstream of the Hetchy Hetchy System, the SFPUC utilizes local watersheds in the Bay Area. Crystal Springs, San Andreas, and Pilarcitos Reservoirs, located in San Mateo County, capture local runoff in the Peninsula watershed, and Calaveras and San Antonio Reservoirs, located in Alameda Country, capture local runoff in the Alameda watershed. In addition to capturing local runoff, San Andreas, San Antonio, and Crystal Springs Reservoirs also provide storage for water from the Hetch Hetchy System and, along with Calaveras Reservoir, are an important water supply in the event of an interruption to Hetch Hetchy System deliveries.

Calaveras Reservoir had been operating in recent years at one-third of its capacity due to restrictions imposed by the DWR Division of Safety of Dams (DSOD). The Calaveras Dam Replacement Project, which took place from 2011 to 2019, involved the construction of a new dam downstream of the existing dam. The SFPUC began

[13] The Turlock Irrigation District and Modesto Irrigation District have senior water rights to the City for the Tuolumne River water and are provided the first increment of flow in the Upper Tuolumne River watershed according to the apportionment set forth in the Raker Act of 1913 (38 Stat. 242). The water bank at Don Pedro Reservoir provides a credit and debit system, which allows the City to divert water upstream while meeting its obligations to the Turlock Irrigation District and Modesto Irrigation District. Through this mechanism, the SFPUC may pre-deliver the Turlock Irrigation District's and Modesto Irrigation District's entitlements and credit the water bank so that at other times the SFPUC may retain water upstream while the Turlock Irrigation District and Modesto Irrigation District debit the water bank.

impounding water behind the new dam in the winter of 2018/2019 and continued the initial fill of the reservoir during the 2019/2020 winter season.

Table 6-1 Regional Water System Storage Capacity

Reservoir	Storage	
	Acre-Feet (AF)	**Billions of Gallons (BG)**
Up-Country[a]		
Hetch Hetchy	360,360	117.4
Lake Lloyd[b]	273,300	89.1
Lake Eleanor	27,100	8.8
Subtotal Up-Country	**660,760**	**215.3**
Local		
Calaveras (East Bay)[c]	96,800	31.5
San Antonio (East Bay)	50,500	16.5
Crystal Springs (Peninsula)[d]	69,300	22.6
San Andreas (Peninsula)	19,000	6.2
Pilarcitos (Peninsula)	3,100	1.0
Subtotal Local	**238,700**	**77.8**
Total Regional Water System[e]	**899,460**	**293.1**

a Three other regulating reservoirs are also part of the RWS: Early Intake, Priest, and Moccasin Reservoirs.
b Storage capacity shown includes flashboards, which are structures placed in a spillway to increase the capacity of a reservoir.
c Calaveras Reservoir was constructed with a storage capacity of 96,800 AF. Since December 2001, in response to safety concerns about the seismic stability of the dam and a directive from the Division of Safety of Dams (DSOD), the SFPUC held the maximum water level at approximately 37,800 AF (roughly 40% of its maximum capacity). The construction of a new replacement dam downstream was completed in 2019 to restore the dam's full storage capacity and the dam was continuing to be filled over the 2019/2020 winter season.
d Crystal Springs Reservoir has a maximum storage capacity of 22.6 BG (at 291.8 feet). Based on permit conditions, the reservoir is currently operated at 287.8 feet (4 feet below capacity).
e This includes 63,700 AF in dead storage (i.e., the volume in a reservoir below the lowest controllable level). In addition, the SFPUC may draw against a credit of up to 570,000 AF in storage in a water bank account in Don Pedro Reservoir, for total storage for planning purposes of 1,469,460 AF.

6.1.2 Individual Supply Guarantees

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 MGD to the 24 permanent Wholesale Customers collectively. San Jose and Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco. The Supply Assurance is allocated among the 24 permanent Wholesale Customers through Individual Supply Guarantees (ISG), which represent each Wholesale Customer's allocation of the 184 MGD Supply Assurance.

Prior 2018, East Palo Alto's ISG was 1.963 MGD or approximately 717 million gallons (MG) per year. In 2018 and 2019, a portion of ISG's from the City of Mountain View and the City of Palo Alto were permanently transferred to East Palo Alto, resulting in the City's current ISG of 3.46 MGD, or approximately 1,264 MG per year.[14] In 2016 and 2017, the City purchased 72% and 77% of its ISG, respectively. However, following the ISG increase, the City used 52%, 44% and 45% of its ISG in 2018, 2019, and 2020, respectively (see Table 6-9).

6.1.3 2028 SFPUC Decisions (formerly 2018 SFPUC Decisions)

Information regarding the 2028 SFPUC Decisions (formerly 2018 SFPUC Decision) was provided by BAWSCA in coordination with SFPUC and is provided verbatim below.

> In the 2009 WSA, the SFPUC committed to make three decisions before 2018 that affect water supply development:
>
> - Whether or not to make the cities of San Jose and Santa Clara permanent customers,
> - Whether or not to supply the additional unmet supply needs of the Wholesale Customers beyond 2018, and
> - Whether or not to increase the wholesale customer Supply Assurance above 184 MGD.
>
> Events since 2009 made it difficult for the SFPUC to conduct the necessary water supply planning and CEQA analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated WSA, the decisions were deferred for 10 years to 2028.
>
> Additionally, there have been recent changes to instream flow requirements and customer demand projections that have affected water supply planning beyond 2018. As a result, the SFPUC has established an Alternative Water Supply Planning program to evaluate several regional and local water supply options. Through this program, the SFPUC will conduct feasibility studies and develop an Alternative Water Supply Plan by July 2023 to support the continued development of water supplies to meet future needs.

[14] East Palo Alto purchased 1.0 MGD from the City of Mountain View in 2017. The City of Palo Alto transferred 0.5 MGD to East Palo Alto in 2018.

6.2 Groundwater

☑ ***CWC § 10631***

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

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

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

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

The County of San Mateo Department of Public Works constructed a groundwater well at the Gloria Way site in 1979. The well was put into operation by the City as a source of supply in 1981 and used as such until 1989 when it was taken offline due to issues with the quality of the produced groundwater (i.e., high TDS, iron, and manganese).[15] In 2018, the City completed a well reactivation project, including pump replacement, installation of a new iron and manganese treatment system, blending system, pump station and surge tank, reconnection to the City's water distribution system, and reactivation of the well from a permitting perspective. The reactivated Gloria Way well has not yet been brought into production but is permitted for use by the City as a potable water source. The City has also taken steps towards the addition of another well at the Pad D site, including drilling and installation of a test well, and completion of design and California Environmental Quality Act (CEQA) documentation for a new standby production well and treatment system at the site. Information related to the local groundwater basin is described in more detail below.

[15] Todd Engineers, Kennedy/Jenks Consultants, & ESA, 2012*, Gloria Way Water Well Production Alternatives Analysis & East Palo Alto Water Security Feasibility Study*, dated November 2012.

6.2.1 Groundwater Basin Description

The City overlies the southern end of the San Mateo Plain Subbasin (groundwater basin number 2-009.03; or "subbasin") of the Santa Clara Valley Basin. The subbasin is not adjudicated, nor has it been found by Department of Water Resources (DWR) to be in a condition of overdraft. As part of the implementation of the Sustainable Groundwater Management Act (SGMA), the subbasin was ranked as a "very low priority" basin under the 2014 California Statewide Groundwater Elevation Monitoring (CASGEM) basin prioritization process and maintained this ranking in DWR's latest basin prioritization effort in 2019. The subbasin is therefore not subject to the requirements of SGMA.

6.2.1.1 *Physical Setting*

The subbasin is approximately 38,000 acres[16] and is bounded by the Santa Cruz Mountains on the west, San Francisco Bay and the Niles Cone subbasin on the east, the Westside Basin on the north near Burlingame Avenue and Coyote Point, and the San Francisquito Creek and the Santa Clara subbasin to the south. Figure 6-2 shows the subbasin boundary, the surrounding subbasins of the Santa Clara Valley Basin, and the location of the City's service area within the subbasin.

The subbasin is filled with alluvial fan deposits formed by tributaries to San Francisco Bay that drained across the basin and toward the center of the Bay (EKI et al., 2018). These alluvial fan deposits are interbedded with thick clay aquitards or confining layers and comprise the main water bearing formations within the subbasin. The major water bearing formation of the subbasin is the Quaternary alluvium, from which all larger yielding wells acquire their water. The Santa Clara Formation underlies the Quaternary alluvium and is the other water bearing formation of the subbasin. In general, the groundwater system is unconfined in the higher elevations, and confined or semiconfined at lower elevations closer to San Francisco Bay.

Groundwater flow in the subbasin is generally from west-southwest to east-northeast, from the edge of the Santa Cruz Mountains to San Francisco Bay. Both the southern and eastern edges of the subbasin are political boundaries that are roughly coincident with County lines, rather than physical hydrogeologic barriers to groundwater flow (EKI et al., 2018). Depending upon temporally varying streamflow, recharge, and pumping conditions, groundwater flow likely occurs in variable directions across each boundary.

Natural recharge occurs by infiltration of water from streams that enter the valley from the upland areas within the drainage basin, including San Francisquito Creek, San Mateo Creek, and other smaller creeks, and by percolation of precipitation that falls directly on the land surface. Additional recharge occurs as a result of infiltration of applied irrigation water. Subbasin outflows include limited municipal and private well pumping and groundwater outflows across subbasin boundaries.

It is further noted that the United States Geological Survey (USGS) has defined the "San Francisquito Alluvial Fan" as a unique groundwater subbasin that is roughly coincident with the known lateral extent

[16] Basin area is based on the SGMA 2019 Basin Prioritization results.

of the San Francisquito Creek alluvial fan deposits.[17] The San Francisquito Alluvial Fan subbasin underlies portions of East Palo Alto, and overlaps with the southern end of the subbasin. The San Francisquito Alluvial Fan subbasin has been the subject of several hydrologic and water balance studies. As described in the Final Feasibility of Supplemental Groundwater Resources Development in Menlo Park and East Palo Alto (Todd Engineers, 2005), the San Francisquito Alluvial Fan subbasin encompasses mountainous bedrock terrain and relatively flat alluvial fan deposits. The geology is composed of the coarse- and fine-grained alluvial deposits of San Francisquito Creek. The groundwater system includes a shallow aquifer, a laterally extensive confining clay layer, and a multi-layered deep aquifer that extends to depths of up to 1,000 feet below ground surface. Storativity values indicate the shallow aquifer is unconfined and the deeper aquifer system is semi-confined. Pumping test and empirical transmissivity and well yield data indicate that development of a municipal supply wells within the San Francisquito Cone portion of the subbasin is feasible.

6.2.1.2 *Groundwater Conditions*

Groundwater use in the subbasin has been relatively limited for the last several decades, as the primary water supply source for the overlying population has been imported water from the SFPUC RWS. The only municipal water suppliers within the subbasin that utilize groundwater as a potable supply source are the City of East Palo Alto, Palo Alto Park Mutual Water Company (PAPMWC), and O’Connor Tract Co-operative Water Company (O’Connor Tract CWC). As part of its Emergency Water Storage/Supply Project, Menlo Park Municipal Water (MPMW) has installed one groundwater well and has plans to install several more wells with a total capacity of 3,000 gallons per minute (gpm); however, groundwater is currently not considered by MPMW as a regular normal or dry year supply. In addition to the above municipal uses, groundwater is also used by various entities in the subbasin for landscape or domestic irrigation purposes. Total groundwater production for water supply within the subbasin is approximately 2,300 acre-feet per year (AFY) (EKI et al., 2018)[18].

Based on limited available groundwater level information, the subbasin is currently in a relatively full and stable condition. However, historical information indicates that during past periods of high groundwater production in the 1850s to 1960s, groundwater levels in the subbasin were significantly lower and negative impacts including seawater intrusion and land subsidence were observed (EKI et al., 2018). A recent renewed interest in groundwater development in the subbasin has increased the need and interest in gaining a better understanding of the subbasin and evaluating the extent to which increased groundwater development can be pursued, while mitigating potential negative impacts. Details on the subbasin groundwater management efforts are described in the section below.

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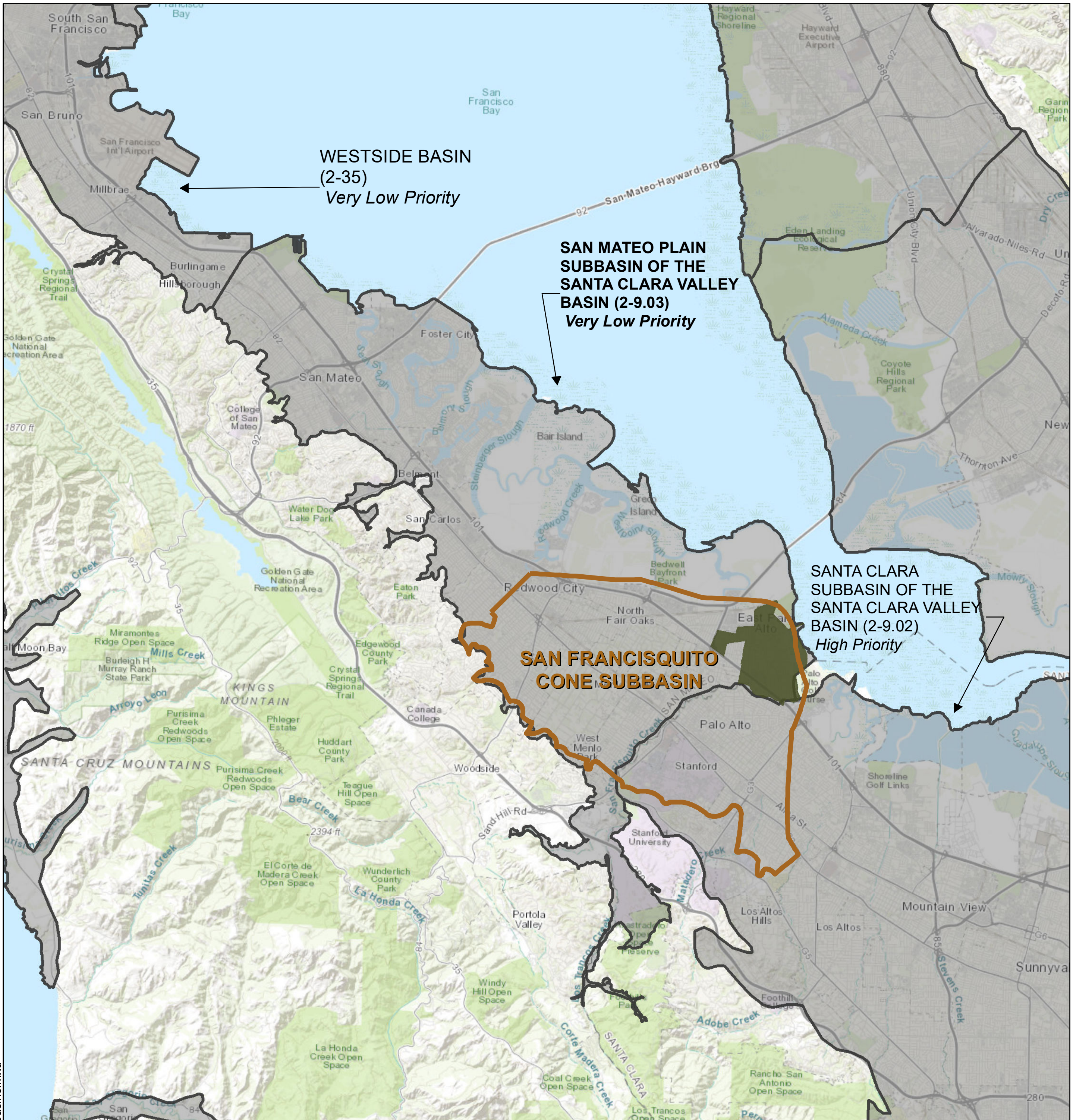
[17] Metzger, L.F., 2002, *Streamflow Gains and Losses along San Francisquito Creek and Characterization of Surface-Water and Ground-Water Quality, Southern San Mateo and Northern Santa Clara Counties, California, 1996-97*, U.S. Geological Survey Water-Resources Investigations Report 02-4078.

[18] The groundwater production value stated above excludes East Palo Alto which did not start pumping from its re-activated Gloria Way Well in 2018.



Legend

- East Palo Alto Service Area
- San Francisquito Cone Subbasin
- DWR Bulletin 118 Groundwater Basin

Abbreviations

CASGEM = California Statewide Groundwater Elevation Monitoring Program
DWR = Department of Water Resources

Notes

1. All locations are approximate.
2. Priority rankings from CASGEM groundwater basin priortization, May 2020

Sources

Topographic base map provided by ArcGIS Online

N

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Miles

Groundwater Basins in the Vicinity of East Palo Alto Service Area

City of East Palo Alto
2020 Urban Water Management Plan
East Palo Alto, CA
June 2021
EKI C00118.00

eki environment & water

Figure 6-2

Path: X:\C00118\Maps\2021\06\Fig6-2_EastPaloAlto_GroundwaterBasins.mxd

6.2.2 Groundwater Management

As stated above, the subbasin is currently designated by the DWR as a "very low priority" basin and is exempt from complying with SGMA. However, multiple entities overlying the subbasin have expressed interests in maintaining groundwater sustainability and/or established a formal role in the subbasin management.

The San Mateo County conducted a comprehensive groundwater basin assessment in 2018 (EKI et al., 2018). The study provided a more complete understanding of the subbasin hydrogeologic framework and groundwater flow and quality conditions. It also identified potential groundwater management strategies for the subbasin.

Informed by this study, San Mateo County has begun to participate in the CASGEM program. CASGEM is a groundwater elevation monitoring program that was developed by DWR per the requirements of SBx7-6. The objective of CASGEM is to establish a permanent, locally managed program of regular groundwater monitoring to track seasonal and long-term trends in groundwater elevations. The County of San Mateo Office of Sustainability provided initial notification to DWR of its intent to become the CASGEM Monitoring Entity for the subbasin in 2019. A CASGEM Monitoring Plan, including a monitoring network of approximately ten wells throughout the subbasin, was submitted to and approved by DWR in 2020 and monitoring pursuant to the CASGEM Plan has been initiated. Compliance with CASGEM is an important first step in setting the subbasin up for long-term sustainable management and funding.

There has also been widespread agreement among the overlying cities, water suppliers and other interested parties that cooperative, sustainable groundwater management of the entire subbasin is needed. Several entities, including the City[19], have passed resolutions in support of sustainable groundwater management where they state their commitment to: (1) working with other agencies and organizations to better understand the hydrology and geology of the San Francisquito Creek area; and (2) the sustainable management of local groundwater, including conjunctive water management and aggressive conservation, to protect its quality and ensure its availability during droughts and emergency situations.

The subbasin is currently not managed pursuant to any groundwater management plan (GWMP). However, Santa Clara Valley Water District (SCVWD) and the City of East Palo Alto adopted their own GWMPs in 2012 and 2015, respectively. The SCVWD GWMP covers the small far southern portion of the subbasin within Santa Clara County, and was updated in 2016 (SCVWD, 2016) and submitted to DWR as an Alternative to a Groundwater Sustainability Plan (GSP). The East Palo Alto GWMP addresses groundwater conditions within the jurisdictional boundary of the City in the southeastern portion of the subbasin (Todd Engineers, 2015). The East Palo Alto GWMP was prepared in accordance with Assembly Bill (AB) 3030 and the amendments to AB 3030 provided by Senate Bill (SB) 1938 and AB 359.

In addition, BAWSCA initiated work with San Mateo County and its member agencies to form the Groundwater Reliability Partnership (GRP) in 2015. The main focus of the GRP was to provide information

[19] Resolution No. 4542, *Resolution in Support of Sustainable Groundwater Management in the San Francisquito Creek Area*, September 2, 2014.

regarding SGMA and other locally relevant groundwater management efforts to the BAWSCA member agencies and other interested parties. The GRP has not been active since 2018.

6.2.3 Historical Groundwater Use

As discussed above, the City has not used groundwater as a potable water source since 1989 (see Table 6-2). However, groundwater is anticipated to be part of the City's future water supply portfolio.

Table 6-2 Groundwater Volume Pumped (DWR Table 6-1)

	Supplier does not pump groundwater. The supplier will not complete the table below.					
	All or part of the groundwater described below is desalinated.					
Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	San Mateo Plain Subbasin of the Santa Clara Valley Basin (DWR 2-9.03)	0	0	0	0	0
	TOTAL					
NOTES: (a) Volumes are in units of MG.						

6.2.4 Projected Future Groundwater Use

The City plans to operate its Gloria Way well in the future at 150 gpm approximately seven hours per day, two days a week, for a total projected annual production of approximately 7 MG.

Currently the City plans to utilize the Pad D well (if constructed) as a standby source, pursuant to California Code of Regulations Title 22 Section 64414. However, as discussed in Chapter 7, significant shortages are currently being projected on the SFPUC RWS supplies. In the event that shortages of that magnitude occur, the City could update permitting of the Pad D well and system to use it as a standard potable water source to supplement dry year supplies.

6.3 Surface Water

Water that is self-supplied to agencies from streams, lakes and reservoirs is considered a surface water supply. Although East Palo Alto's potable water supply is originally derived from surface water, it is categorized as "purchased" water since the water is obtained from the SFPUC RWS. East Palo Alto does not currently, nor does it plan to in the future, use self-supplied surface water as part of its water supply portfolio.

6.4 Stormwater

East Palo Alto does not currently, nor does it plan to in the future, use diverted stormwater as part of its water supply portfolio.

6.5 Wastewater and Recycled Water

☑ ***CWC § 10633***

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

Recycling water involves treating wastewater to an acceptable level such that it can be reused for irrigation, cooling, and other non-potable applications. A key benefit of water recycling is its potential to offset the use of potable supplies. The regulatory requirements for recycled water are defined in the California Code of Regulations, Title 22, Article 3 (Title 22) and vary for different uses (e.g., irrigation for food crops, landscape, and recreation).

East Palo Alto does not utilize recycled water, nor does it currently have plans to use recycled water within its service area. The sections below describe wastewater collection and treatment for the East Palo Alto service area.

6.5.1 Coordination

Wastewater within the City is collected by East Palo Alto Sanitary District (EPASD) and West Bay Sanitary District (WBSD). East Palo Alto's wastewater is treated at either the City of Palo Alto's Regional Water Quality Control Plant (RWQCP) or the Silicon Valley Clean Water (SVCW) treatment facility. Both treatment facilities treat a portion of their flow to tertiary-treated recycled water standards, with the remaining flow being discharged into the San Francisco Bay.

The City coordinates with these entities and adjacent municipalities on the potential options for recycled water within the City service area.

6.5.2 Wastewater Collection, Treatment, and Disposal

☑ ***CWC § 10633 (a)***

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

☑ ***CWC § 10633 (b)***

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

Wastewater in the City's service area is collected by two wastewater agencies: EPASD and WBSD. The collection, treatment, and disposal of the City's wastewater is described for each of these agencies in the following sections. The volume of wastewater collected from the East Palo Alto service area in 2020 was approximately 490 MG, see Table 6-3. No wastewater is treated or disposed of within the City's service area (see Table 6-4).

6.5.2.1 *East Palo Alto Sanitary District*

The EPASD serves portions of the City and the City of Menlo Park through a collection system comprised of approximately 35 miles of gravity sewer mains, ranging from 6-inch diameter to 24-inch diameter pipe. The EPASD discharges all collected wastewater to the City of Palo Alto's RWQCP. The EPASD has an annual average treatment capacity allotment from the RWQCP of 3.06 MGD, or 7.64% of the plant's total treatment capacity. The RWQCP has a dry-weather capacity of 39 MGD and a wet-weather capacity of 80 MGD. The EPASD collected approximately 438 MG of wastewater from the City's service area in 2020 (Table 6-3)

6.5.2.2 *West Bay Sanitary District*

The WBSD serves customers within the northern portion of the City, as well as other customers within the cities of Menlo Park, Atherton, Portola Valley, and Woodside, and unincorporated San Mateo and Santa Clara Counties. The WBSD collection system conveys wastewater to the Menlo Park Pumping Station, where it is then transported to the Silicon Valley Clean Water (SVCW) facilities in Redwood City for treatment and discharge to the San Francisco Bay. The WBSD collected approximately 52 MG of wastewater from the City's service area in 2020 (Table 6-3).

The SVCW wastewater treatment plant (WWTP) is jointly owned and operated by WBSD and the Cities of Redwood City, Belmont, and San Carlos as a joint powers authority. The treatment processes at the SVCW WWTP involve the following: primary sedimentation, dual secondary treatment with fixed film reactors and activated sludge, filtration, disinfection using sodium hypochlorite, and dechlorination with sodium bisulfide. Discharge of the advanced secondarily-treated effluent is permitted by the San Francisco Regional Water Quality Control Board (RWQCB).

Since 2000, the SVCW WWTP has produced tertiary-treated, unrestricted use recycled water under Title 22 for reuse in Redwood City. Approximately 856 acre-feet per year (AFY) was reused in Redwood City in 2020. Redwood City has completed construction on Phase I and Phase II of its recycled water distribution system, which will supply the initial phases of the recycled water project, up to 2,000 AFY, while providing the flexibility to deliver up to 3,238 AFY (or 907 MG per year) in the future to Redwood City as well as to neighboring communities (Redwood City, 2021).

Table 6-3 Wastewater Collected Within Area in 2020 (DWR Table 6-2)

	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party? *(optional)*
East Palo Alto Sanitary District	Estimated	438	City of Palo Alto	Regional Water Quality Control Plant	No	
West Bay Sanitary District	Estimated	52	Silicon Valley Clean Water	Silicon Valley Clean Water	No	
Total Wastewater Collected from Service Area in 2020:		490				
NOTES: (a) Volumes are in units of MG.						

Table 6-4 Wastewater Treatment and Discharge Within Service Area in 2020 (DWR Table 6-3)

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

6.5.3 Current and Projected Uses of Recycled Water

☑ ***CWC § 10633 (c)***

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

☑ ***CWC § 10633 (d)***

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

☑ ***CWC § 10633 (e)***

The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

Currently there is no recycled water use within the City's service area and the City does not have any plans to use recycled water in the future (Table 6-5).

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

<table>
<tr><td>X</td><td colspan="11">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.</td></tr>
<tr><td colspan="3">Name of Supplier Producing (Treating) the Recycled Water:</td><td colspan="9"></td></tr>
<tr><td colspan="3">Name of Supplier Operating the Recycled Water Distribution System:</td><td colspan="9"></td></tr>
<tr><td colspan="3">Supplemental Water Added in 2020 (volume)</td><td colspan="9"></td></tr>
<tr><td colspan="3">Source of 2020 Supplemental Water</td><td colspan="9"></td></tr>
<tr><td colspan="2">Beneficial Use Type</td><td>Potential Beneficial Uses of Recycled Water (Describe)</td><td>Amount of Potential Uses of Recycled Water (Quantity)</td><td>General Description of 2020 Uses</td><td>Level of Treatment</td><td>2020</td><td>2025</td><td>2030</td><td>2035</td><td>2040</td><td>2045</td></tr>
<tr><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td><td>Total:</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">2020 Internal Reuse</td><td></td><td colspan="5"></td></tr>
<tr><td colspan="12">NOTES:</td></tr>
</table>

6.5.4 Comparison of Previously Projected Use and Actual Use

☑ *CWC § 10633 (e)*

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

The 2015 UWMP projected no use of recycled water. The City does not currently use recycled water and therefore, has met the previous projections (Table 6-6).

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

X	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below.	
Beneficial Use Type	2015 Projection for 2020	2020 Actual Use
Total		
NOTES:		

6.5.5 Promoting Recycled Water Use

☑ *CWC § 10633 (e-g)*

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

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

Currently there are no financial or other incentives to the City's customers to encourage use of recycled water, as recycled water is not available within the City's service area (Table 6-7). If and when recycled water becomes available within the City's service area in the future, appropriate financial incentives would be considered to encourage recycled water use.

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

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

6.6 Desalinated Water Opportunities

> ☑ ***CWC § 10631 (g)*** *A plan shall be adopted in accordance with this chapter and shall do all of the following:*
>
> *Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.*

Opportunities to develop desalinated water supplies from ocean water, brackish surface, and brackish groundwater are being investigated by the BAWSCA as part of Phase II of its Long Term Reliable Water Supply Strategy (see Section 7.1.3.5). According to BAWSCA, there are high costs and intensive permitting requirements associated with desalination. However, it does potentially provide a substantial yield given the limited options for generating significant new water supplies for the region. SFPUC is also exploring desalination as part of its Alternative Water Supply Planning Program (see Section 7.1.3.5)

East Palo Alto does not anticipate opportunities for development of desalinated water supplies within the planning horizon of this UWMP and this water supply is not being considered.

6.7 Water Exchanges and Transfers

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

6.7.1 Exchanges and Transfers

There are potential transfer and exchange opportunities within and outside of the SFPUC RWS. As described in Section 6.1.2, the City purchased 1.0 MGD of ISG from the City of Mountain View in 2017 and the City of Palo Alto transferred 0.5 MGD their ISG to East Palo Alto in 2018, respectively. East Palo Alto does not presently anticipate the need for additional water right transfers during normal year conditions.

However, should that condition change in the future, it is possible that the City could purchase water from another agency or entity either within or outside of the SFPUC RWS. For example, as part of a recent agreement with the City of Mountain View, East Palo Alto agreed to assume 0.25 MGD of Minimum Purchase Obligation in return for receiving right of first refusal on any drought transfers pursued by the City of Mountain View.

Within the SFPUC RWS, it is possible to transfer water entitlements and/or banked water among agencies. For example, the Water Shortage Allocation Plan adopted by all BAWSCA agencies and the SFPUC provides the basis for voluntary transfers of water among BAWSCA agencies during periods when mandatory rationing is in effect on the SFPUC RWS (see Section 7.1.1). Some BAWSCA agencies have the capacity to rely on groundwater or other sources during dry years and thus may be willing to transfer a portion of their wholesale water entitlement to other BAWSCA agencies in need of supply above their allocations.

Securing water from willing sellers outside the SFPUC RWS is a more complex process than transfers within the RWS, which requires both a contract with the seller agency and approval by the SFPUC. BAWSCA has the authority to plan for and acquire supplemental water supplies and continues to evaluate the feasibility of water transfers as part of its implementation of the Long Term Reliable Water Supply Strategy (see Section 7.1.3.5).

6.7.2 Emergency Interties

As discussed in Section 3.4, metered interties exist between three other water systems: two, one-way interties with Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company, and one intertie with the City of Menlo Park[20]. The City previously had an intertie with the City of Palo Alto and is exploring the option of constructing an intertie in the future. Interties are not considered part of the City's normal supply portfolio.

[20] The City has seven additional interties with Menlo Park, however they are unmetered and currently valved off.

6.8 Potential Water Supply Projects and Programs

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

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

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

This section lists the water supply projects that may be undertaken by both the wholesaler (i.e., SFPUC) and East Palo Alto.

6.8.3 SFPUC Water Supply Projects

East Palo Alto's wholesaler, SFPUC, has been implementing its Water System Improvement Plan (WSIP) since it was adopted in 2008. The WSIP includes several water supply projects to address the Level of Service Goals and Objective established in the WSIP and updated in February 2020. SFPUC has also developed an Alternative Water Supply Planning Program to explore other projects that would increase overall water supply resiliency. These programs and future water supply projects are described in Section 7.1.3.5 .

6.8.4 Groundwater

East Palo Alto recently completed design documents for the Pad D well, which is currently planned as a standby source. However, the Pad D well, if constructed, could also be used as part of dry year supplies in the case of major restrictions on the SFPUC system. This would require permitting of the Pad D system as a standard potable water source; however, the City does not plan to use Pad D during normal year water supply conditions.

The City also performed a conceptual evaluation of adding the local O'Connor Tract Co-operative Water Company and Palo Alto Park Mutual Water Company Systems into the City's system, which are currently 100 percent dependent on local groundwater to meet demands. The potential impacts on the City's demand and supply portfolio are provided in Appendix E for City consideration.

Given the current uncertainties, as shown in Table 6-8, no projects have been identified that would be anticipated to result in a quantifiable increase to the City's water supply.

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

	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
X	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.					
Section 6.8	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier
	Y/N	*If Yes, Supplier Name*				
NOTES:						

6.9 Summary of Existing and Planned Sources of Water

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

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

East Palo Alto's historical and current supply is presented in Table 6-9.

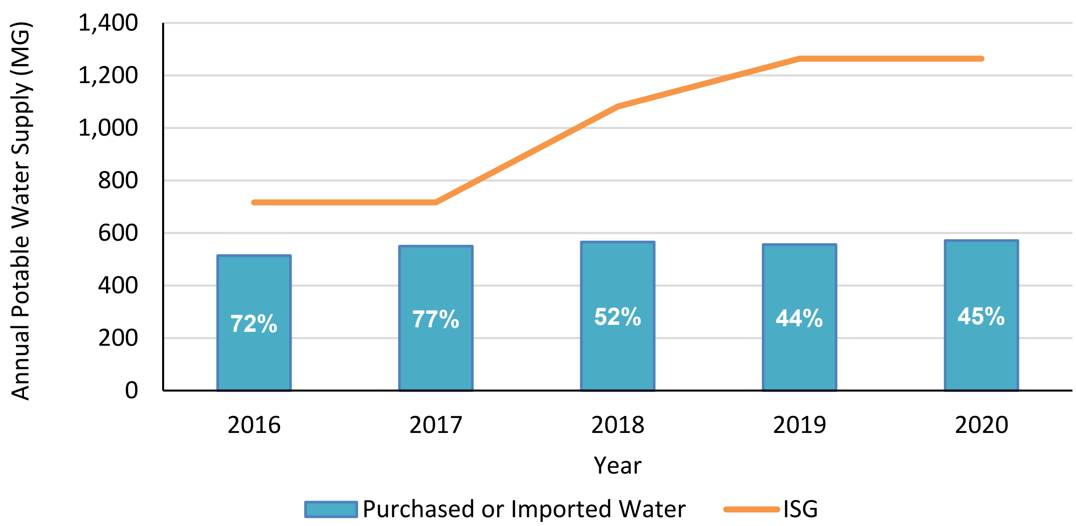
East Palo Alto historically and currently purchases potable water from the SFPUC RWS to meet potable water demands within the East Palo Alto service area. In FY 2019-2020, East Palo Alto purchased approximately 572 MG from the SFPUC RWS for use in the City's service area.

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

Water Supply	Additional Detail on Water Supply	Actual Volume					Water Quality	Total Right or Safe Yield *(optional)*
		2016	2017	2018	2019	2020		
Purchased or Imported Water	SFPUC	514	550	566	556	572	Drinking Water	1,264
Groundwater (not desalinated)	Gloria Way Well	0	0	0	0	0	Drinking Water	--
Total		514	550	566	556	572		1,264

NOTES:
(a) Volumes are in units of MG.
(b) The annual water supply values for 2016 through 2020 are based on monthly wholesale water meter readings and prorated to align with the fiscal year. The values presented do not include water that was purchased from SFPUC and sold to another agency.
(c) The City of East Palo Alto has a current ISG of 3.46 MGD, or approximately 1,264 MG per year.

Chart 6-9 Current and Historical Potable Water Supply



East Palo Alto plans to continue to purchase wholesale water from the SFPUC RWS but will also begin using the Gloria Way Well to augment water supplies. Water supplies from the SFPUC RWS through 2045 are projected to be equivalent to the expected yield from the Gloria Way Well (7 MG per year) plus East Palo Alto's ISG of 1,264 MG, which is East Palo Alto's contractual entitlement to SFPUC wholesale water, which survives in perpetuity. East Palo Alto's total water supply projections are shown in Table 6-10 in five-year increments through 2045.

Table 6-10 Water Supplies - Projected (DWR Table 6-9)

Water Supply	Additional Detail on Water Supply	Projected Water Supply									
		2025		2030		2035		2040		2045	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Purchased or Imported Water	SFPUC	1,264		1,264		1,264		1,264		1,264	
Groundwater (not desalinated)	Gloria Way well	7		7		7		7		7	
	Total	1,271	0	1,271	0	1,271	0	1,271	0	1,271	0

NOTES:
(a) Volumes are in units of MG.
(b) Reasonably available volume from SFPUC is estimated from the City's Individual Supply Guarantee (ISG).
(c) Groundwater supply is estimated from current operation of Gloria Way well of 150 gpm for 7 hours per day and 2 days per week. The Pad D well, if constructed, would only be operational for emergency supply and potentially drought supply, so is not included in projected normal year water supplies.

6.10 Special Conditions

☑ ***CWC § 10635(b)***

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

6.10.1 Climate Change Effects

The issue of climate change has become an important factor in water resources planning in California, and is frequently considered in urban water management planning processes, though the extent and precise effects of climate change remain uncertain. There is convincing evidence that increasing concentrations of greenhouse gasses have caused and will continue to cause a rise in temperatures around the world, which will result in a wide range of changes in climate patterns. Moreover, observational data show that a warming trend occurred during the latter part of the 20th century and virtually all projections indicate this will continue through the 21st century. These changes will have a direct effect on water resources in California, and numerous studies have been conducted to determine the potential impacts to water resources. Based on these studies, climate change could result in the following types of water resource impacts, including impacts on the watersheds in the Bay Area:

- Reductions in the average annual snowpack due to a rise in the snowline and a shallower snowpack in the low and medium elevation zones, such as in the Tuolumne River basin, and a shift in snowmelt runoff to earlier in the year;
- Changes in the timing, annual average, intensity and variability of precipitation, and an increased amount of precipitation falling as rain rather than snow;
- Long-term changes in watershed vegetation and increased incidence of wildfires that could affect water quality and quantity;
- Sea level rise and an increase in saltwater intrusion;
- Increased water temperatures with accompanying potential adverse effects on some fisheries and water quality;
- Increases in evaporation and concomitant increased irrigation need; and
- Changes in urban and agricultural water demand.

Both the SFPUC and BAWSCA participated in the 2020 update of the Bay Area Integrated Regional Water Management Plan (BAIRWMP), which includes an assessment of the potential climate change vulnerabilities of the region's water resources and identifies climate change adaptation strategies. In addition, the SFPUC continues to study the effect of climate change on the RWS. These works are summarized below.

Bay Area Integrated Regional Water Management Plan

Climate change adaptation continues to be an overarching theme for the 2019 BAIRWMP update. As stated in the BAIRWMP, identification of watershed characteristics that could potentially be vulnerable to future climate change is the first step in assessing vulnerabilities of water resources in the Bay Area Region (Region). Vulnerability is defined as the degree to which a system is exposed to, susceptible to, and able to cope with or adjust to, the adverse effects of climate change. A vulnerability assessment was conducted in accordance with the DWR's *Climate Change Handbook for Regional Water Planning* and using the most current science available for the Region. The vulnerability assessment, summarized in the table below, provides the main water planning categories applicable to the Region and a general overview of the qualitative assessment of each category with respect to anticipated climate change impacts.

Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Areas	General Overview of Vulnerabilities
Water Demand	**Urban and Agricultural Water Demand** – Changes to hydrology in the Region as a result of climate change could lead to changes in total water demand and use patterns. Increased irrigation (outdoor landscape or agricultural) is anticipated to occur with temperature rise, increased evaporative losses due to warmer temperature, and a longer growing season. Water treatment and distribution systems are most vulnerable to increases in maximum day demand.
Water Supply	**Imported Water** – Imported water derived from the Sierra Nevada sources and Delta diversions provide 66 percent of the water resources available to the Region. Potential impacts on the availability of these sources resulting from climate change directly affect the amount of imported water supply delivered to the Region. **Regional Surface Water** – Although future projections suggest that small changes in total annual precipitation over the Region will not change much, there may be changes to when precipitation occurs with reductions in the spring and more intense rainfall in the winter. **Regional Groundwater** – Changes in local hydrology could affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long-term in some areas. Decreased inflow from more flashy or more intense runoff, increased evaporative losses and warmer and shorter winter seasons can alter natural recharge of groundwater. Salinity intrusion into coastal groundwater aquifers due to sea-level rise could interfere with local groundwater uses. Furthermore, additional reductions in imported water supplies would lead to less imported water available for managed recharge of local groundwater basins and potentially more groundwater pumping in lieu of imported water availability.

Vulnerability Areas	General Overview of Vulnerabilities
Water Quality	**Imported Water** – For sources derived from the Delta, sea-level rise could result in increases in chloride and bromide (a disinfection by-product (DBP) precursor that is also a component of sea water), potentially requiring changes in treatment for drinking water. Increased temperature could result in an increase in algal blooms, taste and odor events, and a general increase in DBP formation **Regional Surface Water** – Increased temperature could result in lower dissolved oxygen in streams and prolong thermocline stratification in lakes and reservoirs forming anoxic bottom conditions and algal blooms. Decrease in annual precipitation could result in higher concentrations of contaminants in streams during droughts or in association with flushing rain events. Increased wildfire risk and flashier or more intense storms could increase turbidity loads for water treatment. **Regional Groundwater** – Sea-level rise could result in increases in chlorides and bromide for some coastal groundwater basins in the Region. Water quality changes in imported water used for recharge could also impact groundwater quality.
Sea-Level Rise	Sea-level rise is additive to tidal range, storm surges, stream flows, and wind waves, which together will increase the potential for higher total water levels, overtopping, and erosion. Much of the bay shoreline is comprised of low-lying diked baylands which are already vulnerable to flooding. In addition to rising mean sea level, continued subsidence due to tectonic activity will increase the rate of relative sea-level rise. As sea-level rise increases, both the frequency and consequences of coastal storm events, and the cost of damage to the built and natural environment, will increase. Existing coastal armoring (including levees, breakwaters, and other structures) is likely to be insufficient to protect against projected sea-level rise. Crest elevations of structures will have to be raised or structures relocated to reduce hazards from higher total water levels and larger waves.
Flooding	Climate change projections are not sensitive enough to assess localized flooding, but the general expectation is that more intense storms would occur thereby leading to more frequent, longer and deeper flooding. Changes to precipitation regimes may increase flooding.

Vulnerability Areas	General Overview of Vulnerabilities
	Elevated Bay elevations due to sea-level rise will increase backwater effects exacerbating the effect of fluvial floods and storm drain backwater flooding.
Ecosystem and Habitat	Changes in the seasonal patterns of temperature, precipitation, and fire due to climate change can dramatically alter ecosystems that provide habitats for California's native species. These impacts can result in species loss, increased invasive species ranges, loss of ecosystem functions, and changes in vegetation growing ranges. Reduced rain and changes in the seasonal distribution of rainfall may alter timing of low flows in streams and rivers, which in turn would have consequences for aquatic ecosystems. Changes in rainfall patterns and air temperature may affect water temperatures, potentially affecting coldwater aquatic species. Bay Area ecosystems and habitat provide important ecosystem services, such as: carbon storage, enhanced water supply and quality, flood protection, food and fiber production. Climate change is expected to substantially change several of these services. The region provides substantial aquatic and habitat-related recreational opportunities, including: fishing, wildlife viewing, and wine industry tourism (a significant asset to the region) that may be at risk due to climate change effects.
Hydropower	Currently, several agencies in the Region produce or rely on hydropower produced outside of the Region for a portion of their power needs. As the hydropower is produced in the Sierra, there may be changes in the future in the timing and amount of energy produced due to changes in the timing and amount of runoff as a result of climate change. Some hydropower is also produced within the region and could also be affected by changes in the timing and amount of runoff.

Source: 2019 Bay Area Integrated Regional Water Management Plan (BAIRWMP), Table 16-3.

SFPUC Climate Change Studies

The SFPUC views assessment of the effects of climate change as an ongoing project requiring regular updating to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. Climate change research by the SFPUC began in 2009 and continues to be refined. In its 2012 report "Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios," the SFPUC assessed the sensitivity of runoff into Hetch Hetchy Reservoir to a range of changes in temperature and precipitation due to climate change. Key conclusions from the report include the following:

- With differing increases in temperature alone, the median annual runoff at Hetch Hetchy would decrease by 0.7-2.1 percent from present-day conditions by 2040 and by 2.6-10.2 percent from present-day by 2100. Adding differing decreases in precipitation on top of temperature increases, the median annual runoff at Hetch Hetchy would decrease by 7.6-8.6 percent from present-day conditions by 2040 and by 24.7-29.4 percent from present-day conditions by 2100.
- In critically dry years, these reductions in annual runoff at Hetch Hetchy would be significantly greater, with runoff decreasing up to 46.5 percent from present day conditions by 2100 utilizing the same climate change scenarios.
- In addition to the total change in runoff, there will be a shift in the annual distribution of runoff. Winter and early spring runoff would increase and late spring and summer runoff would decrease.
- Under all scenarios, snow accumulation would be reduced and snow would melt earlier in the spring, with significant reductions in maximum peak snow water equivalent under most scenarios.

Currently, the SFPUC is conducting a comprehensive assessment of the potential effects of climate change on water supply using a wide range of plausible increases in temperature and changes in precipitation to address the wide uncertainty in climate projections over the planning horizon 2020 to 2070. There are many uncertain factors such as climate change, changing regulations, water quality, growth and economic cycles that may create vulnerabilities for the Regional Water System's ability to meet levels of service. The uncertainties associated with the degree to which these factors will occur and how much risk they present to the water system is difficult to predict, but nonetheless they need to be considered in SFPUC planning. To address this planning challenge, the project uses a vulnerability-based planning approach to explore a range of future conditions to identify vulnerabilities, assess the risks associated with these vulnerabilities that could lead to developing an adaptation plan that is flexible and robust to a wide range of future outcomes.

6.10.2 Regulatory Conditions and Project Development

Emerging regulatory conditions (e.g., issues surrounding the Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary [Bay-Delta Plan Amendment]) may affect planned future projects and the characterization of future water supply availability and analysis. A detailed description of the potential impacts of Bay-Delta Plan Amendment implementation on RWS supply reliability is included in Section 7.1. East Palo Alto currently does not have any plans to develop new non-emergency supply sources. If East Palo Alto does move forward with any plans to develop supply projects, emerging regulatory conditions will be considered, and the associated water supply reliability impacts will be assessed in future UWMP updates.

6.10.3 Other Locally Applicable Criteria

Other locally applicable criteria may affect characterization and availability of an identified water supply (e.g., changes in regional water transfer rules may alter the availability of a water supply that had historically been readily available). Reliability of the SFPUC RWS supply is further discussed in Section 7.1. East Palo Alto does not have any current plans to develop new non-emergency supply sources. If East Palo Alto does move forward with any plans to develop supply projects, locally applicable criteria will be considered, and the associated water supply reliability impacts will be assessed in future UWMP updates.

6.11 Energy Consumption

☑ ***CWC § 10631.2***

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

East Palo Alto used the "Total Utility Approach" defined by DWR in the UWMP Guidebook 2020 to report water-related energy consumption. Fiscal year 2019-2020 is selected as the one-year reporting period. During fiscal year 2019-2020, no energy was used to operate the City's distribution system because the City relies on system pressure from the SFPUC RWS to convey water throughout the City distribution system. The total volume of water entering the system was 572 MG, however energy intensity was not calculated (Table 6-11).

Table 6-11 Recommended Energy Intensity - Total Utility Approach (DWR Table O-1B)

Urban Water Supplier: *City of East Palo Alto*

Water Delivery Product
Retail Potable Deliveries

Enter Start Date for Reporting Period	7/1/2019	Urban Water Supplier Operational Control		
End Date	6/30/2020			
Is upstream embedded in the values reported?	No	Sum of All Water Management Processes	Non-Consequential Hydropower	
Water Volume Units Used	MG	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*572*	*0*	*572*
Energy Consumed (kWh)		*0*	*0*	*0*
Energy Intensity (kWh/volume)		*0*	*0.0*	*0*

Quantity of Self-Generated Renewable Energy
0 kWh

Data Quality
Estimate

Data Quality Narrative:

Narrative:
No energy was used to operate the City's distribution system because the City relies on system pressure from the SFPUC RWS to convey water throughout the City distribution system

7. WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

☑ ***CWC § 10620 (f)***

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

☑ ***CWC § 10630.5***

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

This chapter assesses the reliability of the City of East Palo Alto's (City or East Palo Alto) water supplies, with a specific focus on potential constraints, including purchased water supply availability, water quality, and climate change. The intent of this chapter is to identify any potential constraints that could affect the reliability of the City's supply during normal, single dry-year, and multiple dry-year hydrologic conditions.

East Palo Alto purchases most of its potable water supply from the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS). The reliability of the SFPUC RWS is anticipated to vary greatly in different year types. East Palo Alto has relied on the supply reliability estimates provided by the SFPUC for the RWS and the drought allocation structure provided by SFPUC and the Bay Area Water Supply and Conservation Agency (BAWSCA) to estimate available RWS supplies in dry year types through 2045. In addition to the long-term reliability assessment, this chapter also presents a Drought Risk Assessment (DRA) to evaluate East Palo Alto's supply risks under a severe drought period lasting for the next five consecutive years (i.e., through 2025).

The City also owns and operates one groundwater well that will be used to supplement the water supply from the SFPUC RWS. Groundwater is assumed to be 100% reliable and not subject to the reliability issues discussed herein.

7.1 Water Service Reliability Assessment

The following sections describe East Palo Alto's water service reliability assessment, which presents the City's expected water service reliability for a normal year, single dry year, and five consecutive dry years projections in five-year increments between 2025 and 2045.

7.1.1 Service Reliability - Constraints on Water Sources

As described in Chapter 6, East Palo Alto projects to purchase most of its potable water supply from the SFPUC RWS. Several potential constraints have been identified on future supply availability, water quality, and climate change. These constraints, along with associated management strategies are summarized in the following sections.

7.1.1.1 *Regional Water System Supply Constraints*

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

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

Detailed information is provided below regarding factors that impact the SFPUC RWS supply reliability. The source for the information is the common language provided by the SFPUC and the Bay Area Water Supply and Conservation Agency (BAWSCA) (see Appendix F and Appendix G).

Level of Service Goals

The SFPUC historically has met demand in its service area in all year types from its watersheds, which consist of:

- Tuolumne River watershed
- Alameda Creek watershed
- San Mateo County watersheds

In general, 85 percent of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15 percent comes from the local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos and San Andreas Reservoirs. The adopted Water Supply Improvement Program (WSIP) retains this mix of water supply for all year types.

In 2008, the SFPUC adopted Level of Service (LOS) Goals and Objectives in conjunction with the adoption of WSIP. The SFPUC updated the LOS Goals and Objectives in February 2020. The SFPUC's LOS Goals and Objectives related to water supply are:

Program Goal	System Performance Objective
Water Supply – *meet customer water needs in non-drought and drought periods*	• Meet all state and federal regulations to support the proper operation of the water system and related power facilities. • Meet average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non–drought years for system demands consistent with the 2009 Water Supply Agreement. • Meet dry-year delivery needs while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. • Diversify water supply options during non-drought and drought periods. • Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

Bay-Delta Plan Impacts

Based on information provided by SFPUC and BAWSCA (Appendix F and Appendix G) the adoption of the 2018 Bay-Delta Plan Amendment is anticipated to impact the reliability of the RWS supplies in the future.

> In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 30-50% of the "unimpaired flow"[21] on the three tributaries from February through June in every year type. In SFPUC modeling of the new flow standard, it is assumed that the required release is 40% of unimpaired flow.
>
> If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in this Urban Water Management Plan (UWMP) in normal years but would experience supply shortages in single dry years or multiple

[21] "Unimpaired flow represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds." (Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Dec. 12, 2018) p.17, fn. 14, available at https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.)

dry years. Implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years. The SFPUC has initiated an Alternative Water Supply Planning Program (AWSP) to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate change. As the region faces future challenges – both known and unknown – the SFPUC is considering this suite of diverse non-traditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for multiple reasons.

First, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal courts, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including a legal challenge filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation. This litigation is in the early stages and there have been no dispositive court rulings as of this date.

Second, the Bay-Delta Plan Amendment is not self-implementing and does not automatically allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Bay-Delta Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, may be implemented through the water quality certification process set forth in section 401 of the Clean Water Act as part of the Federal Energy Regulatory Commission's licensing proceedings for the Don Pedro and La Grange hydroelectric projects. It is currently unclear when the license amendment process is expected to be completed. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Third, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support the SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing

> under the California Natural Resources Agency and the leadership of the Newsom administration.[22]

Drought Allocation Methodology

Given the constraints described above, the SFPUC has provided all of the Wholesale Customers with estimates of the RWS reliability in all year types though 2045, as shown in Appendix G. The Tier One Plan describes the method for allocating RWS water between Retail and Wholesale Customers during system-wide shortages of 20% or less. The Tier Two Plan allocates the collective Wholesale Customer share from the Tier One Plan among each of SFPUC's 26 Wholesale Customers.

For the purposes of 2020 UWMP development only, SFPUC and BAWSCA have provided revised methodologies to allocate RWS supplies during projected future single dry and multiple dry years in instances where the projects supply shortfalls are greater than 20%. SFPUC and BAWSCA assumed that Tier One allocations for system-wide shortfalls of 16% to 20% would apply for all shortfalls greater than 20%. BAWSCA also provided a revised methodology to allocate RWS supplies to Wholesale Agencies. The inclusion of these revised methodologies, which serve as the preliminary basis for UWMP supply reliability analyses, does not in any way imply an agreement by BAWSCA member agencies as to the exact allocation methodologies.

The Tier One and Tier Two Plans and the drought allocation methodologies used in the 2020 UWMP for shortfalls of greater than 20% are further described below.

Tier One Drought Allocations

> In July 2009, San Francisco and its Wholesale Customers in Alameda County, Santa Clara County, and San Mateo County (Wholesale Customers) adopted the Water Supply Agreement (WSA), which includes a Water Shortage Allocation Plan (WSAP) that describes the method for allocating water from the RWS between Retail and Wholesale Customers during system-wide shortages of 20 percent or less. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated WSA.
>
> The SFPUC allocates water under the Tier One Plan when it determines that the projected available water supply is up to 20 percent less than projected system-wide water purchases. The following table shows the SFPUC (i.e, Retail Customers) share and the Wholesale Customers' share of the annual water supply available during shortages depending on the level of system-wide reduction in water use that is required. The Wholesale Customers' share will be apportioned among the individual Wholesale Customers based on a separate methodology adopted by the Wholesale Customers, known as the Tier Two Plan, discussed further below.

[22] California Natural Resources Agency, "Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds," available at https://files.resources.ca.gov/voluntary-agreements/.

Level of System-Wide Reduction in Water Use Required	Share of Available Water	
	SFPUC Share	Wholesale Customers Share
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%

The Tier One Plan allows for voluntary transfers of shortage allocations between the SFPUC and any Wholesale Customer as well as between Wholesale Customers themselves. In addition, water "banked" by a Wholesale Customer, through reductions in usage greater than required, may also be transferred.

As amended in 2018, the Tier One Plan requires Retail Customers to conserve a minimum of 5 percent during droughts. If Retail Customer demands are lower than the Retail Customer allocation (resulting in a "positive allocation" to Retail[23]) then the excess percentage would be re-allocated to the Wholesale Customers' share. The additional water conserved by Retail Customers up to the minimum 5 percent level is deemed to remain in storage for allocation in future successive dry years.

The Tier One Plan will expire at the end of the term of the WSA in 2034, unless mutually extended by San Francisco and the Wholesale Customers.

The Tier One Plan applies only when the SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code Section 350. Separate from a declaration of a water shortage emergency, the SFPUC may opt to request voluntary cutbacks from its Retail and Wholesale Customers to achieve necessary water use reductions during drought periods.

As discussed above, the Tier One Plan only applies to system-wide shortages of 20% or less, and there is currently no methodology for sharing available water between SFPUC and Wholesale Customers for system-wide shortages of greater than 20%. SFPUC and BAWSCA assumed that Tier One allocations for System-Wide shortfalls of 16% to 20% would apply for all shortfalls greater than 20% for purposes of the UWMP supply reliability analyses. The analysis included herein does not in any way imply an agreement by BAWSCA member agencies with the assumed application of the Tier One allocations by SFPUC and BAWSCA for shortages of greater than 20%.

Tier Two Drought Allocations

The Wholesale Customers have negotiated and adopted the Tier Two Plan, referenced above, which allocates the collective Wholesale Customer share from the Tier One Plan

[23] See Water Supply Agreement, Water Shortage Allocation Plan (Attachment H), Section 2.1.

among each of the 26 Wholesale Customers. These Tier Two allocations are based on a formula that takes into account multiple factors for each Wholesale Customer including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in millions of gallons per day (MGD), which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the Wholesale Customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain Wholesale Customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all Wholesale Customers' Allocation Bases to determine each wholesale customer's Allocation Factor. The final shortage allocation for each Wholesale Customer is determined by multiplying the amount of water available to the Wholesale Customers' collectively under the Tier One Plan, by the Wholesale Customer's Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the Wholesale Customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each Wholesale Customer will also change. However, for long-term planning purposes, each Wholesale Customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted.

Per WSA Section 3.11, the Tier One and Tier Two Plans will be used to allocate water from the Regional Water System between Retail and Wholesale Customers during system-wide shortages of 20% or less. For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis. For purposes of the 2020 UWMPs, for San Francisco Regional Water System (RWS) shortages in excess of 20%, the allocations among the Wholesale Customers is assumed to be equivalent among them and to equal the drought cutback to Wholesale Customer by the SFPUC.

The Tier Two Plan, which initially expired in 2018, has been extended by the BAWSCA Board of Directors every year since for one additional calendar year. In November 2020, the BAWSCA Board voted to extend the Tier Two Plan through the end of 2021.

Revised Drought Allocation Plan

As detailed by BAWSCA in multiple memos and workshops (Appendix G), the Tier Two Plan was not designed for RWS shortages greater than 20%.[24] In a memorandum dated 1 March 2021, BAWSCA provided a refined methodology to allocate RWS supplies during projected future single dry and multiple dry years in the instance where the supply shortfalls are greater than 20%. The revised methodology developed by BAWSCA allocates the wholesale RWS supplies as follows:

1. When the average Wholesale Customers' RWS shortages are 10 percent or less, an equal percent reduction will be applied across all agencies. This is consistent with the existing Tier Two requirement of a minimum 10 percent cutback in any Tier Two application scenario.
2. When average Wholesale Customers' shortages are between 10 and 20 percent, the Tier Two Plan will be applied.
3. When the average Wholesale Customers' RWS shortages are greater than 20 percent, an equal percent reduction will be applied across all agencies.

The associated allocations based on the updated BAWSCA methodology are included as Appendix G. While this allocation methodology has been used herein, we note that, per its memoranda dated 18 February 2021 (Appendix G)

> "BAWSCA recognizes that this is not an ideal situation or method for allocation of available drought supplies. In the event of actual RWS shortages greater than 20 percent, the Member Agencies would have the opportunity to negotiate and agree upon a more nuanced and equitable approach. Such an approach would likely consider basic health and safety needs, the water needs to support critical institutions such as hospitals, and minimizing economic impacts on individual communities and the region."

As such, this allocation method is only intended to serve as the preliminary basis for the 2020 UWMP supply reliability analysis. The analysis provided herein does not in any way imply an agreement by BAWSCA member agencies as to the exact allocation methodology. BAWSCA member agencies are in discussions about jointly developing an allocation method that would consider additional equity factors in the event that SFPUC is not able to deliver its contractual supply volume and cutbacks to the RWS supply exceed 20%.

7.1.1.2 *Groundwater Supply Availability*

As documented in Chapter 6, the City plans to begin using groundwater which is projected to 100% reliable.

[24] The Tier One plan was also not designed for RWS shortages greater than 20%.

7.1.1.3 *Water Quality*

☑ ***CWC § 10634***

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

Impaired water quality also has the potential to affect water supply reliability. As discussed in Chapter 6, the majority of the water supply to the SFPUC RWS is from the Hetch Hetchy Reservoir in the Sierra Nevada Mountains. The Hetch Hetchy Reservoir is considered a very high-quality water source due to low total dissolved solid (TDS) concentrations and other factors. Additional water supplies from the Alameda and Peninsula sources come from areas with restricted access to protect the source water quality.

The SFPUC's Water Quality Division (WQD) regularly collects and tests water samples from reservoirs and designated sampling points throughout the RWS to ensure that the SFPUC's water meets or exceeds federal and state drinking water standards. In 2019, the WQD conducted more than 53,650 drinking water tests in the sources and transmission systems. This is in addition to the extensive treatment process control monitoring performed by the SFPUC's certified operators and online instruments. The SFPUC also has online instruments providing continuous water quality monitoring at numerous locations.

Water from the City's Gloria Way well is treated to remove iron and manganese and blended with water from the SFPUC RWS to reduce TDS prior to entering the City's distribution system. Veolia North America (operators of East Palo Alto's water system) operate and monitor the well and treatment system. During system operation, water quality is continuously monitored with online instruments and grab samples are periodically collected to monitor treatment system performance.

Additionally, Veolia North America collects water quality samples and monitors water quality within the City's distribution system. A copy of the City's 2020 Water Quality Report, which contains water quality sampling data from 2019, is included as Appendix H. As can be seen in Appendix H, all of the analyzed constituents were detected at concentrations below the Maximum Contaminant Level (MCL).

The results of East Palo Alto's and SFPUC's water quality assessments show that SFPUC RWS watersheds have very low levels of contaminants, and that those contaminants that are found at low levels are associated with wildlife and, to a limited extent, human recreation. For the purposes of this UWMP, it is anticipated that this high-quality potable water source will continue to be available to East Palo Alto through the planning horizon ending in the year 2045. Water quality is not expected to impact the reliability of East Palo Alto's supplies.

7.1.1.4 *Climate Change*

☑ ***CWC § 10631 (b) (1)***

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

Section 6.10.1 provides a summary of the assessments of the applicable climate change on supplies that SFPUC has previously performed and those planned for the near term. The anticipated effects of climate change have been directly factored into East Palo Alto's assessment of its supply reliability. East Palo Alto is actively working with SFPUC and BAWSCA to further quantify and consider future climate change impacts as part of its ongoing supply and operations planning.

7.1.2 Service Reliability – Year Type Characterization

☑ ***CWC § 10631 (b)***

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

☑ ***CWC § 10631 (b)(1)***

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

☑ ***CWC § 10635 (a)***

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

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

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

Identification of dry year periods consistent with the UWMP Guidebook 2020 methodology is provided in the language and supply projections provided by BAWSCA and the SFPUC in Appendix F and Appendix G and as presented in Table 7-1 and Table 7-2. The data and methods used to develop these dry year supply availabilities are described in the sections, below.

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

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

7.1.2.1 *SFPUC Supply Modeled RWS Dry Year Supply Availability*

As described in SFPUC's 2020 UWMP, SFPUC used the Hetch Hetchy and Local Simulation Model (HHLSM) to estimate SFPUC RWS supply availability for water service reliability assessment and the DRA (Section 7.2). HHLSM simulates supplies over a historical record of hydrology from 1920 through 2017 with a representation of current and planned SFPUC RWS infrastructure and operations.

Water supply shortfalls presented by SFPUC in Appendix G were estimated using SFPUC's design drought methodology. The SFPUC uses a hypothetical 8.5-year design drought that is more severe than what the RWS has historically experienced as the basis for planning and modeling of future scenarios. The design drought consists of the 1987-92 drought, followed by an additional 2.5 years of dry conditions from the hydrologic record that include the 1976-77 drought. The five-consecutive-year dry sequence used for the UWMP represents years 2 through 6 of the design drought. However, the modeling approach assumes water supply rationing each year that is designed to provide sufficient carry-over water in SFPUC reservoirs to continue delivering water, although at reduced levels, during each year of the five-consecutive year drought and the remaining years of the design drought (SFPUC, 2021).

SFPUC provided results for two modeled scenarios, which show significantly different supply reliability projections for the RWS:

1. With full implementation of the Bay-Delta Plan Amendment in 2023
2. Without implementation of the Bay-Delta Plan Amendment

The SFPUC decided to present the water reliability analysis with full implementation of the Bay-Delta Plan Amendment in the SFPUC 2020 UWMP Submittal Tables and provided the following rationale for that decision:

> The adoption of the Bay-Delta Plan Amendment may significantly impact the supply available from the RWS. SFPUC recognizes that the Bay-Delta Plan Amendment has been adopted and that, given that it is now state law, we must plan for a future in which it is fully implemented. SFPUC also acknowledges that the plan is not self-implementing and therefore does not automatically go into effect. SFPUC is currently pursuing a voluntary agreement as well as a lawsuit which would limit implementation of the Plan. With both of these processes occurring on an unknown timeline, SFPUC does not know at this time when the Bay-Delta Plan Amendment is likely to go into effect. As a result, it makes sense to conduct future supply modeling for a scenario that doesn't include implementation of the Bay-Delta Plan Amendment, as that represents a potential supply reliability scenario.
>
> Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, the SFPUC conducted water service reliability assessment that includes: (1) a scenario in which the Bay-Delta Plan Amendment is fully implemented in 2023, and (2) a scenario that considers the SFPUC system's current situation without the Bay-Delta Plan Amendment. The two scenarios provide a bookend for the possible future scenarios regarding RWS supplies. The standardized tables associated with the SFPUC's UWMP contain the future scenario that assumes implementation of the Bay-Delta Plan Amendment starting in 2023.
>
> Although the SWRCB has stated it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, given the current level of uncertainty, it is assumed for the purposes of the SFPUC's draft UWMP that the Bay-Delta Plan Amendment will be fully implemented starting in 2023.

As shown in Appendix G, SFPUC also provided results for each of the modeling scenarios described above assuming demands on the RWS equal to both: (1) the total of projected retail demands and projected Wholesale Customer purchases and (2) a constant water demand of 265 million gallons per day (MGD) from the SFPUC watersheds for retail and Wholesale Customers, consistent with SFPUC's contractual obligation. According to the SFPUC, the modeling based on a demand of 265 MGD was used to "facilitate planning that supports meeting this Level of Service goal and their contractual obligations." Supply modeling results presented in the text of the SFPUC's 2020 UWMP reflect an input of projected retail and Wholesale demands on the RWS.

Consistent with SFPUC's approach and guidance from SFPUC and BAWSCA, East Palo Alto's UWMP presents results for the water service reliability assessment and the DRA (Section 7.2) based on the modeling scenario that assumes full implementation of the Bay Delta Plan Amendment in 2023 and uses projected demands on the RWS. SFPUC modeling results for this scenario showing the total RWS supply available to Wholesale Customers during the characteristic year types can be found in Tables 3a-3g of the SFPUC letter dated 30 March 2021. These results show total Wholesale RWS supply shortfalls ranging from 36% to 54% of projected purchases during dry years after 2023.

For comparison purposes, results for the scenario without the Bay-Delta Plan Amendment can be found in Tables 4a-4g of the same SFPUC letter. These results indicated that the SFPUC would be able to meet 100% of Wholesale projected purchases during all year types except during the fourth and fifth consecutive dry years for base year 2045 when 15% Wholesale supply shortages are projected.

7.1.2.2 *East Palo Alto's Year-Type Characterization*

As discussed in Section 6.1.2, in accordance with the SFPUC's perpetual obligation to East Palo Alto's Supply Assurance, East Palo Alto has an Individual Supply Guarantee (ISG) of 3.46 MGD, or 1,264 MG per year. SFPUC is obligated to provide East Palo Alto with up to 100% of East Palo Alto's ISG during normal years.

Using the SFPUC modeling results presented in the SFPUC letter dated 30 March 2021, BAWSCA provided single and five-consecutive dry-year allocations for each agency based on the methodology described in Section 7.1.1.1 . As discussed in therein, for the purposes for the 2020 UWMP supply reliability analysis only, Wholesale Agency drought allocations assume an equal percent reduction across all agencies when the average Wholesale Customers' RWS shortages are greater than 20%. These percent reductions for the scenario that assumes the implementation of the Bay-Delta Plan Amendment in 2023 are included in Table E of the BAWSCA updated drought allocation memorandum dated 1 April 2021 (Appendix G) and reproduced in Table 7-2, below, for base year 2025 through 2045. The percent reductions shown in Table 7-2 are applied to East Palo Alto's projected potable demands listed in Table 4-8 for each respective base year to calculate the projected dry-year RWS supplies shown in Table 7-4 and Table 7-5.

Table 7-2 RWS Wholesale Supply Availability During Normal and Dry Years for Based Years 2025 through 2045 (Responds to DWR Table 7-1)

Base Year	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
2025	100%	64%	64%	55%	55%	55%	55%
2030	100%	64%	64%	55%	55%	55%	55%
2035	100%	64%	64%	54%	54%	54%	50%
2040	100%	63%	63%	54%	54%	48%	48%
2045	100%	54%	54%	54%	54%	46%	46%

NOTES:
(a) Normal-year water supply availability is presented in terms of percentage of East Palo Alto's ISG (3.46 MGD).
(b) Dry-year water supply availability is presented in terms of percentage of projected RWS demands for each base year (Table 4-8) consistent the revised BAWSCA Drought Methodology that assumes equal percent cutbacks across all Wholesale Agencies.
(c) Results reflect scenario with Bay-Delta Plan Amendment implemented in 2023 and the use projected RWS purchases.

7.1.3 Service Reliability – Supply and Demand Assessment

☑ ***CWC § 10635 (a)***

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

East Palo Alto's projected water demands are compared to water supply projections in normal years, single dry years, and multiple dry year periods.

7.1.3.1 *Water Service Reliability - Normal Year*

Table 7-3 shows the projected supply and demand totals for a normal year. The supply and demand totals are consistent with those in Table 6-10 and Table 4-8, respectively. East Palo Alto is expected to have adequate water supplies during normal years to meet its projected demands through 2045.

Table 7-3 Normal Year Supply and Demand Comparison (DWR Table 7-2)

	2025	2030	2035	2040	2045
Supply totals *From DWR Table 6-9*	1,271	1,271	1,271	1,271	1,271
Demand totals *From DWR Table 4-3*	692	692	721	779	1,078
Difference	578	578	549	492	193

NOTES:
(a) Volumes are in units of MG.
(b) Includes supply from the SFPUC RWS and the City's Gloria Way Well.

7.1.3.2 *Water Service Reliability - Single Dry Year*

The reliability of the SFPUC RWS supply is anticipated to vary greatly in different year types. As described above and detailed in Appendix G, East Palo Alto has relied on the supply reliability estimates provided by the SFPUC for the RWS and the drought allocation structure provided by SFPUC and BAWSCA to estimate available RWS supplies in dry year types through 2045.

Table 7-4 shows the projected supply and demand totals for the single dry year.

Table 7-4 Single Dry Year Supply and Demand Comparison (DWR Table 7-3)

	2025	2030	2035	2040	2045
Supply totals	445	463	492	583	583
Demand totals	692	721	779	927	1,078
Difference	(248)	(258)	(287)	(344)	(495)

NOTES:
(a) Volumes are in units of MG.
(b) Includes supply from the SFPUC RWS and the City's Gloria Way Well.

7.1.3.3 *Water Service Reliability - Five Consecutive Dry Years*

Based on the supply reliability estimates and allocation structure provided by SFPUC and BAWSCA, Table 7-5 shows the City's projected supply and demand totals for multiple dry year periods extending five years.

Table 7-5 Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4)

		2025	2030	2035	2040	2045
First year	Supply totals	445	463	492	583	583
	Demand totals	692	721	779	927	1,078
	Difference	(248)	(258)	(287)	(344)	(495)
Second year	Supply totals	383	397	423	503	583
	Demand totals	692	721	779	927	1,078
	Difference	(310)	(324)	(356)	(424)	(495)
Third year	Supply totals	383	397	423	503	583
	Demand totals	692	721	779	927	1,078
	Difference	(310)	(324)	(356)	(424)	(495)
Fourth year	Supply totals	383	397	423	445	496
	Demand totals	692	721	779	927	1,078
	Difference	(310)	(324)	(356)	(482)	(582)
Fifth year	Supply totals	383	397	390	445	496
	Demand totals	692	721	779	927	1,078
	Difference	(310)	(324)	(389)	(482)	(582)

NOTES:
(a) Volumes are in units of MG.
(b) Includes supply from the SFPUC RWS and the City's Gloria Way Well.

7.1.3.4 *Uncertainties in Dry Year Water Supply Projections*

As shown in the above tables, significant water supply shortfalls are currently projected in future single and multiple dry years, directly because of Bay-Delta Plan Amendment implementation. However, numerous uncertainties remain in the implementation of the Bay-Delta Plan Amendment. The water supply projections presented above likely represent a worst-case scenario in which the Bay-Delta Plan is implemented without the SFPUC and the State Water Resources Control Board (SWRCB) reaching a Voluntary Agreement and do not account for implementation of SFPUC's Alternative Water Supply Program (AWSP), described in more detail below. Under this supply scenario, SFPUC appears not to be able to meet its contractual obligations (i.e., Level of Service goals) and East Palo Alto's forecasted demands during droughts.

As discussed in Section 7.1.2.1 , SFPUC also provided water supply reliability projections without the Bay-Delta Plan Amendment (see Appendix G), which likely represents a highly optimistic water supply reliability outcome. These projections indicated that without the Bay-Delta Plan Amendment SFPUC would be able to supply 100% of projected RWS demands in all year types through 2045, except for the 4th and 5th consecutive dry year in 2045, during which 90% of projected RWS demands would be available. The large disparity in projected water supply reliability between these two scenarios demonstrate the current level uncertainty.

In addition to these two UWMP scenarios, in a 26 March 2021 Special Commission Meeting, SFPUC staff presented HHLSM modeling results for 10 different scenarios, including scenarios with the implementation of the Tuolumne River Voluntary Agreement (TRVA), with the implementation of the Bay-Delta Plan Amendment and the AWSP, and with the use of a modified rationing policy and a modified design drought (Appendix I). Results for the scenarios with the TRVA and with the AWSP (particularly with a modified rationing policy and design drought) showed significantly improved RWS supply availability compared to the Bay-Delta Plan Amendment scenario shown herein.

The current sources of uncertainty in the dry year water supply projections are summarized below:

- *Implementation of the Bay-Delta Plan Amendment is under negotiation.* The SFPUC is continuing negotiations with the SWRCB on implementation of the Bay-Delta Plan Amendment for water supply cutbacks, particularly during droughts. The SFPUC, in partnership with other key stakeholders, has proposed a voluntary substitute agreement to the Bay-Delta Plan Amendment that provides a collaborative approach to protect the environment and plan for a reliable and high-quality future potable water supply. This is a dynamic situation and the projected drought cutback allocations may need to be revised before the next (i.e., 2025) UWMP depending on the outcome of ongoing negotiations.

- *Benefits of the AWSP are not accounted for in current supply projections.* As discussed in Section 7.1.3.5 and Appendix G, SFPUC is exploring options to increase its supplies through the AWSP. Implementation of feasible projects developed under the AWSP is not yet reflected in the supply reliability scenarios presented herein and may reduce the projected shortfalls (Appendix I).

- *SFPUC is considering modifications to its design drought methodology and rationing policy.* Shortening the 8.5-year design drought or modifying the rationing policy to increase rationing in the early years of a drought are anticipated to reduce projected RWS supply shortfalls (Appendix I).

- *Methodology for Wholesale Customer drought allocations have not been established for wholesale shortages greater than 20%.* As discussed in Section 7.1.1.1 an equal percent reduction has been applied across all agencies for the UWMP planning purposes per BAWSCA guidance. BAWSCA member agencies have not formally agreed to adopt this shortage allocation methodology and are in discussions about jointly developing an alternative allocation method that would consider additional equity factors if SFPUC is unable to deliver its contractual supply volume and cutbacks to the RWS supply exceed 20%.

- *Frequency and duration of cutbacks is not well understood.* While the projected shortfalls presented in the UWMP appear severe, the actual frequency and duration of such shortfalls are uncertain. Based on the HHLSM simulations provided by BAWSCA for the with Bay-Delta Plan Amendment scenario (Appendix G), rationing is anticipated to be required 20 percent of years for base year 2025 through 2035, 23 percent of all years for base year 2040, and 25 percent of years for base year 2045. In addition to the supply volumes, the above listed uncertainties would also impact the projected frequency and duration of shortfalls.
- *RWS demands are subject to change.* The RWS supply availability is dependent upon the system demands. As discussed in Section 7.1.1, the supply scenarios are based on the total projected Wholesale Customer purchases provided by BAWSCA to SFPUC in January 2021. Many BAWSCA agencies have refined their projected demands during the UWMP process after these estimates were provided to SFPUC. Furthermore, the RWS demand projections are subject to change in the future based upon future housing needs, increased conservation, and development of additional local supplies.
- *City demands and supplies are subject to change.* The City performed a conceptual analysis of adding the Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company systems into the City system. Those systems rely 100% on groundwater, which could change the City's supply portfolio and potentially augment its dry year supplies, if incorporated into the City system. The preliminary evaluation of the potential impacts on the City's project demand supply portfolio is included as Appendix E.

As such, East Palo Alto has placed high priority on working with BAWSCA and SFPUC in the upcoming years to better refine the estimates of its local and RWS supply reliability and may amend this UWMP when new information becomes available.

The above uncertainties notwithstanding, BAWSCA's current drought allocation cutbacks will require the City to apply its Water Shortage Contingency Plan (WSCP) Stage 6 for water use restrictions above 50% (see Appendix J) and will affect East Palo Alto's short- and long-term water management decisions. As described further below (Section 7.1.3.5), East Palo Alto is working independently and with the other BAWSCA agencies to identify regional mitigation measures to improve reliability for regional and local water supplies and meet its customers' water needs. If conditions for large drought cutbacks to the RWS persist, East Palo Alto will need to implement additional demand management practices to invoke strict restrictions on potable water use and accelerate efforts to develop alternate supplies of water.

East Palo Alto recommends that users of its 2020 UWMP contact City staff for potential updates about its water supply reliability before using the 2020 UWMP drought cutback projections for their planning projects and referencing the drought.

7.1.3.5 *Strategies and Actions to Address Dry Year Supply Shortfalls*

Although there remains significant uncertainty in future supply availability, discussed above, the City of East Palo Alto, SFPUC, and BAWSCA have developed strategies and actions to address the projected dry year supply shortfalls. These efforts are discussed in the following sections.

SFPUC and Other Regional Strategies and Actions

Dry Year Water Supply Projects

The WSIP authorized the SFPUC to undertake a number of water supply projects to meet dry-year demands with no greater than 20% system-wide rationing in any one year. Implementation of these projects is also expected to mitigate impacts of the implementation of the Bay-Delta Plan Amendment. Those projects include the following:

- *Calaveras Dam Replacement Project*. Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC constructed a new dam of equal height downstream of the existing dam. Construction on the project occurred between 2011 and July 2019. The SFPUC began impounding water behind the new dam in accordance with California Division of Safety of Dams (DSOD) guidance in the winter of 2018/2019.
- *Alameda Creek Recapture Project*. As a part of the regulatory requirements for future operations of Calaveras Reservoir, the SFPUC must implement bypass and instream flow schedules for Alameda Creek. The Alameda Creek Recapture Project will recapture a portion of the water system yield lost due to the instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)-24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. Construction of this project will occur from spring 2021 to fall 2022.
- *Lower Crystal Springs Dam Improvements*. The Lower Crystal Springs Dam (LCSD) Improvements were substantially completed in November 2011. The joint San Mateo County/SFPUC Bridge Replacement Project to replace the bridge across the dam was completed in January 2019. A WSIP follow up project to modify the LCSD Stilling Basin for fish habitat and upgrade the fish water release and other valves started in April 2019. While the main improvements to the dam have been completed, environmental permitting issues for reservoir operation remain significant. While the reservoir elevation was lowered due to DSOD restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir elevation. Raising the reservoir elevation now requires that new plant populations be restored incrementally before the reservoir elevation is raised. The result is that it may be several years before pre-project water storage volumes can be restored.
- *Regional Groundwater Storage and Recovery Project*. The Groundwater Storage and Recovery Project (GSRP) is a strategic partnership between SFPUC and three San Mateo County agencies – Cal Water, the City of Daly City, and the City of San Bruno – to conjunctively operate the south Westside Groundwater Basin. The project sustainably manages groundwater and surface water resources in a way that provides supplies during times of drought. During years of normal or heavy rainfall, the project would provide additional surface water to the partner agencies in San Mateo County in lieu of groundwater pumping.

Over time, reduced pumping creates water storage through natural recharge of up to 20 billion gallons of new water supply available during dry years.

The project's Final Environmental Impact Report was certified in August 2014, and the project also received Commission approval that month. Phase 1 of this project consists of construction of thirteen well sites and is over 99 percent complete. Phase 2 of this project consists of completing construction of the well station at the South San Francisco Main site and some carryover work that has not been completed from Phase 1. Phase 2 design work began in December 2019.

- *2 MGD Dry-year Water Transfer*. In 2012, the dry-year transfer was proposed between the Modesto Irrigation District and the SFPUC. Negotiations were terminated because an agreement could not be reached. Subsequently, the SFPUC had discussions with the Oakdale Irrigation District for a one-year transfer agreement with the SFPUC for 2 MGD (2,240 acre-feet). No progress towards agreement on a transfer was made in 2019, but the irrigation districts recognize SFPUC's continued interest and SFPUC will continue to pursue transfers.

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts with a system demand of 265 MGD, and to mitigate the impacts of the Bay-Delta Plan, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP.

Furthermore, the permitting obligations for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements include a combined commitment of 12.8 MGD for instream flows on average. When this is reduced for an assumed Alameda Creek Recapture Project recovery of 9.3 MGD, the net loss of water supply is 3.5 MGD.

Alternative Water Supply Program

As discussed, below, BAWSCA has taken steps to ensure that SFPUC develops alternative water supplies:

With the adoption of the Bay-Delta Plan Phase 1 (Bay-Delta Plan) by the State Water Resources Control Board in December of 2018, coupled with the uncertainties associated with litigation and the development of Voluntary Agreements that, if successful, would provide an alternative to the 40% unimpaired flow requirement that is required by the Bay-Delta Plan, BAWSCA redoubled its efforts to ensure that the SFPUC took necessary action to develop alternative water supplies such that they would be in place to fill any potential gap in supply by implementation of the Bay-Delta Plan and that the SFPUC would be able to meet its legal and contractual obligations to its Wholesale Customers.

In 2019, BAWSCA held numerous meetings with the SFPUC encouraging them to develop a division within their organization whose chief mission was to spearhead alternative water supply development. On June 25, 2019, BAWSCA provided a written and oral statement to the Commissioners urging the SFPUC to focus on developing new sources of supply in a manner similar to how it addressed the implementation of the Water System Improvement Program (WSIP). BAWSCA urged that a new water supply program was called for, with clear objectives, persistent focus, a dedicated team, adequate funding, and a plan for successful execution. The SFPUC Commission supported BAWSCA's recommendation and directed staff to undertake such an approach.

In early 2020, the SFPUC began implementation of the Alternative Water Supply Planning Program (AWSP), a program designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS.

Included in the AWSP is a suite of diverse, non-traditional supply projects that, to a great degree, leverage regional partnerships and are designed to meet the water supply needs of the SFPUC Retail and Wholesale Customers through 2045. As of the most recent Alternative Water Supply Planning Quarterly Update, SFPUC has budgeted $264 million over the next ten years to fund water supply projects. BAWSCA is heavily engaged with the SFPUC on its AWSP efforts.

SFPUC's AWSP is described in more detail below:

The SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience through the AWSP. The drivers for the program include: (1) the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, (2) the net supply shortfall following the implementation of WSIP, (3) San Francisco's perpetual obligation to supply 184 MGD to the Wholesale Customers, (4) adopted LOS Goals to limit rationing to no more than 20 percent system-wide during droughts, and (5) the potential need to identify water supplies that would be required to offer permanent status to interruptible customers. Developing additional supplies through this program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the AWSP are as follows:

1. Offset instream flow needs and meet regulatory requirements
2. Meet existing obligations to existing permanent customers
3. Make interruptible customers permanent
4. Meet increased demands of existing and interruptible customers

In conjunction with these planning priorities, the SFPUC considers how the program fits within the LOS Goals and Objectives related to water supply and sustainability when considering new water supply opportunities. The key LOS Goals and Objectives relevant to this effort can be summarized as:

- Meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide reduction in water service during extended droughts;
- Diversify water supply options during non-drought and drought periods;
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers;
- Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat;
- Maintain operational flexibility (although this LOS Goal was not intended explicitly for the addition of new supplies, it is applicate here).

Together, the planning priorities and LOS Goals and Objectives provide a lens through which the SFPUC considers water supply options and opportunities to meet all foreseeable water supply needs.

In addition to the Daly City Recycled Water Expansion project[25], which was a potential project identified in the SFPUC's 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. A more detailed list and descriptions of these efforts are provided below.

The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. Because these water supply projects would take 10 to 30 years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, the yield from these projects are not currently incorporated into SFPUC's supply projections. State and federal grants and other financing opportunities would be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

- *Daly City Recycled Water Expansion (Regional, Normal- and Dry-Year Supply)*. This project can produce up to 3 MGD of tertiary recycled water during the irrigation season (~7 months). On an average annual basis, this is equivalent to 1.25 MGD or 1,400 AFY. The project is envisioned to provide recycled water to 13 cemeteries and other smaller irrigation customers, offsetting existing groundwater pumping from the South Westside Groundwater Basin; this will free up groundwater, enhancing the reliability of the Basin. The project is a regional partnership between the SFPUC and Daly City. The irrigation customers are located largely within California Water Service's (Cal Water's) service area. RWS customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts. In this way, this project supports the GSR Project, which is under construction.
- *ACWD-USD Purified Water Partnership (Regional, Normal- and Dry-Year Supply)*. This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated wastewater. Purified water produced by advanced water treatment at USD could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin or put to other uses in Alameda County Water District's (ACWD) service area. With the additional water supply to ACWD, an in-lieu exchange with the SFPUC would result in more water left in the RWS. Additional water supply could also be directly transmitted to the SFPUC through a new intertie between ACWD and the SFPUC.
- *Crystal Springs Purified Water (Regional, Normal- and Dry-Year Supply)*. The Crystal Springs Purified Water (PREP) Project is a purified water project that

[25] While this potential project was identified in the 2015 UWMP, it has since been approved by Daly City following environmental review and has a higher likelihood of being implemented.

could provide 6-12 MGD of water supply through reservoir water augmentation at Crystal Springs Reservoir, which is a facility of the RWS. Treated wastewater from Silicon Valley Clean Water (SVCW) and/or the City of San Mateo would go through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. The purified water would then be transmitted 10 to 20 miles (depending on the alignment) to Crystal Springs Reservoir, blended with regional surface water supplies and treated again at Harry Tracy Water Treatment Plant. Project partners include the SFPUC, Bay Area Water Supply and Conservation Agency (BAWSCA), SVCW, CalWater, Redwood City, Foster City, and the City of San Mateo. Partner agencies are contributing financial and staff resources towards the work effort.

- *Los Vaqueros Reservoir Expansion (Regional, Dry Year Supply)*. The Los Vaqueros Reservoir Expansion (LVE) Project is a storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 acre-feet to 275,000 acre-feet. While the existing reservoir is owned and operated by the Contra Costa Water District (CCWD), the expansion will have regional benefits and will be managed by a Joint Powers Authority (JPA) that will be set up prior to construction. Meanwhile, CCWD is leading the planning, design and environmental review efforts. CCWD's Board certified the EIS/EIR and approved the LVE Project on May 13, 2020. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to the SFPUC. BAWSCA is working in concert with the SFPUC to support their work effort on the LVE project.
    - Conveyance Alternatives: The SFPUC is considering two main pathways to move water from storage in a prospective LVE Project to the SFPUC's service area, either directly to RWS facilities or indirectly via an exchange with partner agencies. The SFPUC is evaluating potential alignments for conveyance.
    - Bay Area Regional Reliability Shared Water Access Program (BARR SWAP): As part of the BARR Partnership, a consortium of 8 Bay Area water utilities (including ACWD, BAWSCA, CCWD, EBMUD, Marin Municipal Water District (MMWD), SFPUC, Valley Water, and Zone 7 Water Agency) are exploring opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies. The BARR agencies are proposing two separate pilot projects in 2020-2021 through the Shared Water Access Program (SWAP) to test conveyance pathways and identify potential hurdles to better prepare for sharing water during a future drought or emergency. A strategy report identifying opportunities and considerations will accompany these pilot transfers and will be completed in 2021.
- *Bay Area Brackish Water Desalination (Regional, Normal- and Dry-Year Supply)*. The Bay Area Brackish Water Desalination (Regional Desalination) Project is a partnership between CCWD, the SFPUC, Valley Water, and Zone 7 Water Agency. The East Bay Municipal Utilities District (EBMUD) and ACWD may also participate in the project. The project could provide a new drinking water supply to the region by treating brackish water from CCWD's existing Mallard Slough intake in Contra Costa County. While this project has independent utility as a water supply project, for the current planning effort the SFPUC is

considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, the SFPUC is considering a water supply benefit of between 5 and 15 MGD during drought conditions when combined with storage at LVE.

- *Calaveras Reservoir Expansion (Regional, Dry Year Supply)*. Calaveras Reservoir would be expanded to create 289,000 acre-feet (AF) additional capacity to store excess Regional Water System supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.
- *Groundwater Banking*. Groundwater banking in the Modesto Irrigation District (MID) and Turlock Irrigation District (TID) service areas could be used to provide some additional water supply to meet instream releases in dry years reducing water supply impacts to the SFPUC service area. For example, additional surface water could be provided to irrigators in wet years, which would offset the use of groundwater, thereby allowing the groundwater to remain in the basin rather than be consumptively used. The groundwater that remains in the basin can then be used in a subsequent dry year for irrigation, freeing up surface water that would have otherwise been delivered to irrigators to meet instream flow requirements.

  A feasibility study of this option is included in the proposed Tuolumne River Voluntary Agreement. Progress on this potential water supply option will depend on the negotiations of the Voluntary Agreement.
- *Inter-Basin Collaborations*. Inter-Basin Collaborations could provide net water supply benefits in dry years by sharing responsibility for in-stream flows in the San Joaquin River and Delta more broadly among several tributary reservoir systems. One mechanism by which this could be accomplished would be to establish a partnership between interests on the Tuolumne River and those on the Stanislaus River, which would allow responsibility for streamflow to be assigned variably based on the annual hydrology.

  As is the case with Groundwater Banking, feasibility of this option is included in the proposed Tuolumne River Voluntary Agreement.

If all the projects identified through the current planning process can be implemented, there would still be a supply shortfall to meet projected needs. Furthermore, each of the supply options being considered has its own inherent challenges and uncertainties that may affect the SFPUC's ability to implement it.

Given the limited availability of water supply alternatives - unless the supply risks are significantly reduced or our needs change significantly - the SFPUC will continue to plan, develop and implement all project opportunities that can help bridge the anticipated water supply gaps during droughts. In 2019, the SFPUC completed a survey among water and wastewater agencies within the service area to identify additional opportunities for purified water. Such opportunities remain limited, but the SFPUC continues to pursue all possibilities.

BAWSCA's Long Term Reliability Water Supply Strategy

BAWSCA's Long-Term Reliable Water Supply Strategy (Strategy), completed in February 2015, quantified the water supply reliability needs of the BAWSCA member agencies through 2040, identified the water supply management projects and/or programs (projects) that could be developed to meet those needs, and prepared an implementation plan for the Strategy's recommendations.

When the 2015 Demand Study concluded it was determined that while there is no longer a regional normal year supply shortfall, there was a regional drought year supply shortfall of up to 43 MGD. In addition, key findings from the Strategy's project evaluation analysis included:

- Water transfers represent a high priority element of the Strategy.
- Desalination potentially provides substantial yield, but its high effective costs and intensive permitting requirements make it a less attractive drought year supply alternative.
- Other potential regional projects provide tangible, though limited, benefit in reducing dry-year shortfalls given the small average yields in drought years.

Since 2015, BAWSCA has completed a comprehensive update of demand projections and engaged in significant efforts to improve regional reliability and reduce the dry-year water supply shortfall.

- *Water Transfers*. BAWSCA successfully facilitated two transfers of portions of Individual Supply Guarantee (ISG) between BAWSCA agencies in 2017 and 2018. Such transfers benefit all BAWSCA agencies by maximizing use of existing supplies. BAWSCA is currently working on an amendment to the Water Supply Agreement between the SFPUC and BAWSCA agencies to establish a mechanism by which member agencies that have an ISG may participate in expedited transfers of a portion of ISG and a portion of a Minimum Annual Purchase Requirement. In 2019, BAWSCA participated in a pilot water transfer that, while ultimately unsuccessful, surfaced important lessons learned and produced interagency agreements that will serve as a foundation for future transfers. BAWSCA is currently engaged in the Bay Area Regional Reliability Partnership (BARR)[26], a partnership among eight Bay Area water utilities (including the SFPUC, Alameda County Water District, BAWSCA, Contra Costa Water District, Santa Clara Valley Water District) to identify opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies.
- *Regional Projects*. Since 2015, BAWSCA has coordinated with local and State agencies on regional projects with potential dry-year water supply benefits for BAWSCA's agencies. These efforts include storage projects, indirect/direct water reuse projects, and studies to evaluate the capacity and potential for various conveyance systems to bring new supplies to the region.

[26] https://www.bayareareliability.com/

> BAWSCA continues to implement the Strategy recommendations in coordination with BAWSCA member agencies. Strategy implementation will be adaptively managed to account for changing conditions and to ensure that the goals of the Strategy are met in an efficient and cost-effective manner. On an annual basis, BAWSCA will reevaluate Strategy recommendations and results in conjunction with development of the BAWSCA's FY 2021-22 Work Plan. In this way, actions can be modified to accommodate changing conditions and new developments.

City of East Palo Alto Strategies and Actions

As described in Section 6.2.4, the City is currently considering installing the Pad D well for use as an emergency well. Considering the reliability issues of the SFPUC RWS described above, the City would work towards developing the Pad D Well as a drought year supply to offset impacts of cutbacks from the SFPUC RWS. As shown in Appendix E, the City also explored the impacts of incorporating the Palo Alto Park Mutual Water Company and the O'Connor Tract Co-operative Water Company into the City system, which will change its demand and supply portfolio.

As described in Section 7.1.4, East Palo Alto is committed to developing a long-term supply reliability strategy, including working with BAWSCA to advocate for an alternative to the Bay Delta Plan and continued commitment to East Palo Alto's comprehensive water conservation program.

7.1.4 Management Tools and Options

☑ ***CWC § 10620 (f)***

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

At a regional level, East Palo Alto maintains active involvement in the work that SFPUC and BAWSCA are doing with respect to optimizing the use of regional water supplies and pursuing additional supplies. These efforts are detailed in Sections 7.1.3.5 .

East Palo Alto has also been implementing, and plans to continue to implement, the demand management measures described in Chapter 9. Further, in response to the anticipated future dry-year shortfalls, East Palo Alto has developed a robust Water Shortage Contingency Plan (WSCP) that systematically identifies ways in which East Palo Alto can reduce water demands. The Water Shortage Contingency Plan is included in Appendix J.

7.2 Drought Risk Assessment

☑ ***CWC § 10635(b)***

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

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

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

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

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

In addition to the long-term water service reliability assessment presented above, the DRA evaluates the City's supply risks under a severe drought period lasting for the next five consecutive years after the assessment is completed, i.e., from 2021 through 2025. The DRA is intended to inform the demand management measures and water supply projects and programs to be included in the UWMP (see Appendix J and Chapter 9). Suppliers may conduct an interim update or updates to this DRA within the five-year cycle of its urban water management plan update, i.e., before the 2025 UWMP.

7.2.1 Data, Methods, and Basis for Water Shortage Condition

As a first step to the DRA, East Palo Alto estimates unconstrained water demand for the next five years (2021-2025). Unconstrained water demand is the expected water use in the absence of drought water use restrictions. The characteristic five-year water use is shown in Table 7-6 below, is based upon the Decision Support System (DSS) Model results discussed in Section 4.2.1

Table 7-6 Characteristic Five-Year Water Use

2021	2022	2023	2024	2025
614	637	662	687	692
NOTES: (a) Volumes are in units of MG.				

The available potable water supplies assumed in the DRA are based upon the same methodology and assumptions used for the long-term water service reliability assessment (Section 7.1.1) and relies on information provided by SFPUC and BAWSCA (Appendix G). The available RWS water supplies are estimated based on the following assumptions: (1) the RWS demands are held constant at 132.1 MGD (i.e., 2020 demand levels), (2) implementation of the Bay-Delta Plan Amendment occurs in 2023, and (3) the 2020 infrastructure conditions are maintained (see Table 1 of the 22 January 2021 SFPUC letter in Appendix G). Details of how the City's available supplies are then estimated as part of the DRA are provided below.

7.2.2 DRA Individual Water Source Reliability

As described in Chapter 6, East Palo Alto purchases imported surface water from the SFPUC RWS to meet most of its potable water demands, with a small amount coming from groundwater during normal years.

The City's groundwater supplies during the five-consecutive-year drought are assumed to be 100% reliable. For this DRA, it is assumed that the Pad D well will be available as a drought supply starting in 2023.[27]

The City's available potable water supplies from the SFPUC RWS during the five-consecutive-year drought are based upon information provided by SFPUC and BAWSCA included in Appendix G, as indicated in Section 7.2.1. Specifically, based on the modeling results presented in the 30 March 2021 SFPUC letter, BAWSCA provided percent cutbacks for years 2021 through 2025 in Table F1 of the 1 April 2021 BAWSCA drought allocation tables, which are reproduced in Table 7-7, below, and serve as the basis for the RWS Reliability in the DRA.

[27] The City's WSCP states that once cutbacks reach levels of 40% or greater, additional groundwater will be used to meet demand. It is assumed that both Gloria Way Well and Pad D well will be used under these extreme shortage scenarios. Gloria Way operation is assumed to be up to 150 gpm for 7 hours per day for 104 days per year (i.e., up to 7 MG per year) and Pad D operation is assumed to up to 500 gpm for 12 hours per day for 365 days per year (i.e., up to 131 MG per year).

Table 7-7 East Palo Alto 2020 Base Year Multiple Dry Year Drought Allocations

	2021	2022	2023	2024	2025
East Palo Alto Drought Allocation	614	637	341	341	341

NOTES:
(a) Volumes are in units of MG.
(b) Source: Table F2 from the BAWSCA drought allocation tables dated 1 April 2021.
(c) Five consecutive year drought assumed to start in 2021.
(d) Scenario reflects implementation of the Bay-Delta Plan Amendment in 2023.
(e) Sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests during the first two consecutive dry years, prior to implementation of the Bay-Delta Plan Amendment. Volumes for 2021 and 2022 reflect East Palo Alto's near-term projected purchases previously provided to BAWSCA.
(f) Per system-wide shortages are projected starting in 2023, Wholesale RWS demand is assumed to be static for the remainder of the drought sequence per the Water Supply Agreement.

As shown in Table 7-7, prior to the assumed implementation of the Bay-Delta Plan Amendment in 2023, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests during the first two consecutive dry years (i.e., 2021 and 2022).

Shortages are projected to begin in 2023 with the implementation of the Bay-Delta Plan Amendment. In the event of a shortage, the current Tier 2 Drought Allocation Plan (Section 7.1.1.1) specifies that each agencies' Allocation Factor would be calculated once at the onset of a shortage based on the previous year's use and remain the same until the shortage condition is over. Therefore, for the purpose of drought allocations for the DRA, the available RWS supply is assumed to remain static in 2023-2025 as shown in Table 7-7.[28]

7.2.3 Drought Risk Assessment Total Water Supply and Use Comparison

Table 7-8 provides a comparison of the water supply sources available to East Palo Alto with the total projected water use for an assumed drought period of 2021 through 2025. The City is expected to experience significant shortfalls in years 2023-2025 of the DRA with unconstrained demands because of the assumed implementation of the Bay-Delta Plan Amendment in 2023.

[28] Note that this DRA is based on the percentages shown in Table F1 of the April 1, 2021 BAWSCA letter assuming equal percent cutbacks between agencies instead of the volumes shown in Table F2. This DRA does not rely on the supply volumes shown in Table F2 because they are based on outdated RWS supply projections for the City of East Palo Alto. Specifically, the supply available to the City for years 3, 4 and 5 (i.e., 2023-2025 of the DRA) is estimated as 47% of the City's projected 2022 demand from the DSS Model that supported the demand projections presented herein.

East Palo Alto has developed a WSCP (Appendix J) to address water shortage conditions resulting from any cause (e.g., droughts, impacted distribution system infrastructure, regulatory-imposed shortage restrictions, etc.). The WSCP identifies a variety of actions that East Palo Alto will implement to reduce demands, augment supplies[29], and further ensure supply reliability at various levels of water shortage.

Given the current uncertainty discussed in Section 7.1.3.4 , East Palo Alto could update its DRA prior to the 2025 UWMP update if significant new information becomes available. CWC §10635(b) permits urban water suppliers to conduct an interim update or updates to their DRA within the five-year cycle of its UWMP update. East Palo Alto anticipates that by the 2025 UWMP update, SFPUC will provide more specific information about the AWSP, with estimated water supply contributions from such projects. Additionally, East Palo Alto expects that SFPUC will provide more specific information and a refined estimate of the Bay-Delta Plan Amendment impacts to the SFPUC supply. Further, it is anticipated that the Wholesale Customers will negotiate a revised Tier 2 allocation formula that could affect each agency's share of available supplies in drought years relative to what has been presented herein.

The City of East Palo Alto recommends that users of its 2020 UWMP contact City staff for potential updates to the DRA presented in the 2020 UWMP for their planning projects.

Table 7-8 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (DWR Table 7-5)

2021	Total
Total Water Use	614
Total Supplies	614
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

[29] The City's WSCP states at once cutbacks reach levels of 40% or great, additional groundwater will be used to meet demand. It is assumed that both Gloria Way Well and Pad D well will be used under these extreme shortage scenarios. Gloria Way operation is assumed to be up to 150 gpm for 7 hours per day for 104 days per year (i.e., up to 7 MG per year) and Pad D operation is assumed to up to 500 gpm for 12 hours per day for 365 days per year (i.e., up to 131 MG per year).

Table 7-8 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (DWR Table 7-5)

2022	Total
Total Water Use	637
Total Supplies	637
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	662
Total Supplies	341
Surplus/Shortfall w/o WSCP Action	(321)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	131.4
WSCP - use reduction savings benefit	190
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	49%

2024	Total
Total Water Use	687
Total Supplies	341
Surplus/Shortfall w/o WSCP Action	(346)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	131.4
WSCP - use reduction savings benefit	215
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

Table 7-8 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (DWR Table 7-5)

2025	Total
Total Water Use	692
Total Supplies	341
Surplus/Shortfall w/o WSCP Action	(351)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	131.4
WSCP - use reduction savings benefit	220
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	51%

NOTES:
(a) Volumes are in units of MG.
(b) Assumes use of Pad D well at 500 gpm, 12 hrs/day, year round to augment supplies during the projected shortage of greater than 40%.

8. WATER SHORTAGE CONTINGENCY PLANNING

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

Tables that are required by the Department of Water Resources (DWR) for the WSCP are provided below.

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

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	• In addition to mandatory prohibitions in force at all times, declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) SFPUC or another governing authority (e.g., the State Water Resources Control Board [SWRCB]) has required a voluntary or mandatory reduction in water use of up to 10% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 10%. • Includes implementation of mandatory restrictions on end uses (see WSCP Table 6-1) as well as agency actions (see WSCP Table 6-2).

Shortage Level	Percent Shortage Range	Shortage Response Actions
2	Up to 20%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 20% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 20%. • Includes implementation of mandatory restrictions on end uses (see WSCP Table 6-1) as well as agency actions (see WSCP Table 6-2).
3	Up to 30%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 30% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 30%. • Includes implementation of mandatory restrictions on end uses (see WSCP Table 6-1) as well as agency actions (see WSCP Table 6-2).

Shortage Level	Percent Shortage Range	Shortage Response Actions
4	Up to 40%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 40% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 40%. • Includes implementation of mandatory restrictions on end uses (see WSCP Table 6-1) as well as agency actions (see WSCP Table 6-2).
5	Up to 50%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 50% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 50%. • Includes implementation of mandatory restrictions on end uses (see WSCP Table 6-1) as well as agency actions (see WSCP Table 6-2).

Shortage Level	Percent Shortage Range	Shortage Response Actions
6	>50%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use greater than 50% due to water supply shortages or an emergency, or (2) Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use greater than 50%. • Includes implementation of mandatory restrictions on end uses (see WSCP Table 6-1) as well as agency actions (see WSCP Table 6-2).
NOTES:		

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

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1	Other	5%	1. Hoses must be equipped with a shut-off valve for washing vehicles, sidewalks, walkways, or buildings. 2. Broken or defective plumbing and irrigation systems must be repaired or replaced within 48 hours. 3. Recreational water features, including pools, spas, and jacuzzis, shall be covered when not in use. 4. Ornamental fountains shall use only re-circulated or recycled water. 5. Single-pass cooling systems on new construction shall not be allowed. 6. Potable water shall not be applied in any manner to any driveway, sidewalk, or other hard surface except when necessary to address immediate health or safety concerns. 7. Potable water shall not be used to water outdoor landscapes in a manner that causes runoff onto non-irrigated areas, walkways, roadways, parking lots, or other hard surfaces. 8. Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall. 9. Potable water shall not be used to irrigate ornamental turf on public street medians. 10. Using potable water to irrigate outside of newly constructed homes and buildings in a manner that is inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited. 11. Removing, replacing, altering, or damaging any water meter is prohibited. 12. Other measures as may be approved by Resolution of the City Council.	Yes

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

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
2	Other	15%	1. Continue with actions and measures from Stage 1 except where superseded by more stringent requirements. 2. All landscape irrigation is restricted to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on agricultural or commercial water use. There is no restriction on watering using recycled water. 3. Hotels and motels shall provide guests an option whether to launder towels and linens daily. Hotels and motels shall prominently display notice of this option in each bathroom using clear and easily understood language. 4. Restaurants and other food service operations shall serve water to customers only upon request. 5. Other measures as may be approved by resolution of the City Council.	Yes

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

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
3	Other	25%	1. Continue with actions and measures from Stage 2 except where superseded by more stringent requirements. 2. Agricultural and commercial nursery water use is limited to three days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water. 3. All other landscape irrigation, except for agricultural and commercial nursery water use, is restricted to one day per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water. 4. Other measures as may be approved by resolution of the City Council.	Yes
4	Other	35%	1. Continue with actions and measures from Stage 3 except where superseded by more stringent requirements. 2. The Public Works Director may prohibit water uses not required for public health and safety and fire protection. 3. The Public Works Director may prohibit all outdoor water uses, with the exception of agricultural and commercial nursery water use, which may be limited to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. 4. The Public Works Director may prohibit all recreational water uses. 5. Water use shall not exceed the water budget established for each customer. 6. Other measures as may be approved by resolution of the City Council.	Yes

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

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
5	Other	45%	1. Continue with actions and measures from Stage 4 except where superseded by more stringent requirements. 2. Water use shall not exceed established water budget for each customer. 3. Other measures as may be approved by resolution of the City Council.	Yes
6	Other	55%	1. Continue with actions and measures from Stage 5 except where superseded by more stringent requirements. 2. Other measures as may be approved by resolution of the City Council.	Yes

NOTES:
(a) The percentages listed in this table are the cumulative savings for each shortage level with implementation of corresponding supply augmentation and other agency actions in Table 8-3. Detailed saving estimates based on end use, response action, and implementation rates can be found in WSCP Attachment 3.

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

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference
1	Other	5%	1. Increase public outreach, including publishing water conservation information on the City website and promoting conservation through social media. 2. Expand outreach for existing water conservation programs.
2	Other	15%	1. Continue with actions and measures from Stage 1. 2. Increase public outreach, including information regarding fines or penalties for non-compliance and distributing water bill inserts regarding landscape irrigation restrictions. 3. Expand outreach for existing water conservation programs. 4. Increase water waste patrols.
3	Other	25%	1. Continue with actions and measures from Stage 2. 2. Increase public outreach. 3. Consider implementation of a drought rate structure and/or rate surcharge. 4. No new potable water service shall be provided by the City, except under the following circumstances. a. A valid, unexpired building permit has been issued for the project; or b. The project is necessary to protect the public's health, safety, and welfare; or c. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the Director; or d. To provide continuation of water service or to restore service that has been interrupted for a period of one year or less.

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

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference
4	Other	35%	1. Continue with actions and measures from Stage 3. 2. The Public Works Director may modify the operation of the City's water system to reduce water use, including reduction of water main flushing and reduction of distribution system pressures. 3. The Public Works Director may establish water budgets, such that no customer shall make, cause, use, or permit the use of water for any purpose in an amount in excess of a certain percentage of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year. Waivers or reductions may be granted to individual customers as deemed appropriate by the City. No customer shall be required to reduce water consumption below the minimum amount required for health and safety, as determined by the City.
5	Other	45%	1. Continue with actions and measures from Stage 4. 2. Increase water budget reduction requirements. 3. Use emergency groundwater well.
6	Other	55%	1. Continue with actions and measures from Stage 5. 2. Implement other short-term emergency actions.

NOTES:
(a) The percentages listed in this table are the cumulative savings for each shortage level with implementation of corresponding demand reduction actions in Table 8-2. Detailed saving estimates based on end use, response action, and implementation rates can be found in WSCP Attachment 3.

9. DEMAND MANAGEMENT MEASURES

☑ ***CWC § 10631 (e)***

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

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

(B) For the supplement required of urban retail water suppliers by paragraph (2) of subdivision (f) of Section 10621, a narrative that describes the water demand management measures that the supplier plans to implement to achieve its urban water use objective by January 1, 2027, pursuant to Chapter 9 (commencing with Section 10609) of Part 2.55.

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

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

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

(vi) Water conservation program coordination and staffing support.

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

This section provides an overview of the City of East Palo Alto's (City's or East Palo Alto's) current and planned demand management measures (DMMs), which include specific types and groupings of water conservation measures typically implemented by water suppliers; the DMMs are closely aligned with the California Urban Water Conservation Council (CUWCC) Best Management Practices. The City administers several of its DMMs through past participation in California Urban Water Conservation Council (CUWCC) Best Management Practices (BMPs) (succeeded by the California Water Efficiency Partnership [CalWEP]) and currently with the Bay Area Water Supply & Conservation Agency's (BAWSCA's) Regional Water Conservation Program. The following sections describe BAWSCA's Regional Water Conservation Program and the nature and extent of the specific DMMs implemented by East Palo Alto.

9.1 Regional Water Conservation

East Palo Alto participates in BAWSCA's Regional Water Conservation Program, as a part of its overall water conservation program.

> BAWSCA manages a Regional Water Conservation Program comprised of several programs and initiatives that support and augment member agencies' and customers'

> efforts to use water more efficiently. These efforts extend limited water supplies that are available to meet both current and future water needs; increase drought reliability of the existing water system; and save money for both the member agencies and their customers.
>
> The implementation of the Regional Water Conservation Program builds upon both the Water Conservation Implementation Plan (WCIP, completed in September 2009) and the Regional Demand and Conservation Projections Project (Demand Study, completed in June of 2020). These efforts include both Core Programs (implemented regionally throughout the BAWSCA service area) and Subscription Programs (funded by individual member agencies that elect to participate and implement them within their respective service areas).
>
> BAWSCA's Core Conservation Programs include organizing classes open to the public on topics such as water efficient landscape education and water-wise gardening, assistance related to automated metering infrastructure, and other associated programs that work to promote smart water use and practices. BAWSCA's Subscription Programs include numerous rebate programs, educational programs that can be offered to area schools, technical assistance to member agencies in evaluating water loss, and programs to train and certify contractors employed to install water efficient landscape. In total, BAWSCA offers 22 programs to its member agencies and that number continues to grow over time.
>
> Each fiscal year, BAWSCA prepares an Annual Water Conservation Report that documents how all of BAWSCA's 26 member agencies have benefitted from the Core Conservation Programs. Additionally, the report highlights how all 26 member agencies participate in one or more of the Subscription Programs offered by BAWSCA, such as rebates, water loss management and large landscape audits. The Demand Study indicates that through a combination of active and passive conservation, 37.3 MGD will be conserved by BAWSCA's member agencies by 2045.

Although the program was designed and available at a regional level, most of the implementation of the individual programs within the East Palo Alto service area is done by City staff.

The Core Programs provided as a part of the Regional Water Conservation Program include conservation measures that benefit from regional implementation and provide overall regional benefit and are funded through the annual BAWSCA budget. The Subscription Programs are conservation measures that individual agencies must elect to participate in, and whose benefits are primarily realized within individual water agency service areas. As such, the Subscription Programs are funded by individual member agencies, based on their participation level. As of October 2020, East Palo Alto participates in the following Subscription Programs:

- High-Efficiency Toilet (HET) Rebates
- High-Efficiency Residential Washing Machine Rebates
- Rainwater Container Incentive Rebates
- Landscape Education Program
- WaterWise School Education Program

East Palo Alto's implementation of, and participation in, the Core and Subscription Programs are described in detail below, as they relate to East Palo Alto's implementation of the DMMs.

9.2 Agency Water Conservation

☑ ***CWC § 10631 (e)***

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

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

The City implements all of the DMMs listed in CWC Section 10631(e), as described below.

9.2.1 DMM 1 – Water Waste Prevention Ordinances

Chapter 17.04 of the City's Municipal Code prohibits water waste within the City. The City has prohibited the unreasonable use of water, which is defined as the failure to take appropriate measures to minimize excess application and incidental losses of water. Examples of unreasonable use include allowing excess runoff from irrigation, failing to fix broken plumbing, and more. Specific water-wasting actions are prohibited in Chapter 17.04 of the City's Municipal Code, which is discussed in Appendix K. While Chapter 17.04 of the City's Municipal Code is enforced at all times, the City increases enforcement during periods of water shortage.

9.2.2 DMM 2 – Metering

☑ ***CWC § 526 (a)***

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

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

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

☑ ***CWC § 527 (a)***

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

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

The City requires meters on all connections to the water distribution system, including detector check meters on new private fire protection services. Currently, there are no known unmetered connections to the water distribution. All new commercial and industrial developments are required to have dedicated water meters for landscape irrigation.

9.2.3 DMM 3 – Conservation Pricing

The City charges a set price for all customers per unit of potable water, referred to as a uniform volume charge. The current uniform volume charge is $7.55 per 100 cubic feet of water delivered.[30] Although the City does not utilize an increasing block rate structure, the existing rate structure facilitates water conservation because the customer's water bill increases with the volume of water used.

9.2.4 DMM 4 – Public Education and Outreach

The City implements a number of public education and outreach initiatives with support from the BAWSCA Regional Water Conservation Program, including the following initiatives:

- Water efficient landscape education classes: The City coordinates with BAWSCA in the advertising of a series of Water-Efficient Landscape Education that are free to the public and are designed to introduce homeowners and landscape professionals to the concepts of sustainable landscape design. The classes focus on creating beautiful, water-efficient gardens as an alternative to lawns. Examples of specific class topics include "Lawn Replacement 101", "Drought Tolerant Plants", and "From Graywater to Green Garden", among others.
- *Water-Wise Gardening in the Bay Area* landscape educational tool: The City promotes the popular landscape educational tool *Water-Wise Gardening in the Bay Area*. Initially created as a CD-ROM in FY 2006-07, the educational tool is currently available on-line via BAWSCA's website so that it can be readily accessed by the public. The *Water-Wise Gardening in the Bay Area* tool contains information on how to create and maintain a beautiful, low-water-use garden and includes photographs of water-efficient gardens and provides links to the plants that compose the featured gardens. The featured gardens are primarily composed of sites in the Bay Area, specifically within the BAWSCA service area.

The full extent of public outreach that the City has conducted between 2015 and 2020 is discussed in Section 9.3.

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

The City tracks unaccounted-for-water within its system, which is calculated as the difference between metered water consumption and total water production. Unaccounted-for-water includes unmetered water consumption, such as water used for system flushing, leak repair flushing, hydrant leaks, and street sweeping, as well as water lost in the distribution system due to leaks and other water losses.

In an effort to minimize water system loss, Veolia North America (Veolia) conducts leak investigations on behalf of the City. The City estimates that each leak investigation saves approximately 3,000 gallons. The City's previous water system operator, American Water Enterprise, performed leak investigations during

[30] The City's current water rates are available at the following link: https://www.eastpaloaltowater.com/pages/customer-service/rates/.

the period between 2015 and May 2020, however the City does not have records of these investigations. The City's current water system operator, Veolia, did not perform any leak investigations in between 1 June 2020 and the end of the fiscal year on 30 June 2020.

To manage loss in the future, Veolia has procedures in place to initiate a leak investigation when an individual account has a higher than normal water use over a short period (e.g., daily).

9.2.6 DMM 6 – Water Conservation Program Coordination and Staffing Support

The City's water conservation program is administered by the City Engineer. Duties include program management, tracking, planning, responding to public requests, and completing any required reporting. The City Engineer is supported by one staff member. Contact information for the City Engineer is listed below:

Name: Humza Javed

Phone: 650-853-3130

Email: hjaved@cityofepa.org

9.2.7 DMM 7 – Other DMMs

Other DMMs provided by the City, in addition to those discussed above, include the following:

- Rain Barrel Rebate: The City offers rain barrel rebates of up to $200 to its residential customers through the San Mateo Countywide Water Pollution Prevention Program. San Mateo County tracks the number of participants countywide, however they do not track by individual City.

In the past, the City has participated in other DMM programs through BAWSCA subscription programs, such as the high-efficiency toilet rebate and high-efficiency residential washing machine rebate programs, however, the City did not participate in these programs between 2015 and 2020. The City is planning to offer these programs to its residents in the future.

The full extent of the DMMs that the City has implemented between 2015 and 2020 is discussed in Section 9.3.

9.3 Implementation Over the Past Five Years

Table 9-1 summarizes the DMMs implemented by East Palo Alto and the extent of implementation (e.g., number of rebates) for each of the programs listed under Section 9.2 between 2015 and 2020.

9.4 Planned Implementation to Achieve Water Use Targets

☑ ***CWC § 10631 (e)***

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

(1) (A) … The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

East Palo Alto implemented all of the DMMs described in Section 9.2 to achieve its Senate Bill (SB) X7-7 water use targets. As shown in Chapter 5, East Palo Alto's water use in 2020 was 60 gallons per capital per day (GPCD), which is substantially lower than its SB X7-7 water use target of 124 GPCD.

9.5 Urban Water Use Objectives (Future Requirement)

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

East Palo Alto intends to continue and expand implementation of the DMMs discussed above and will continue to participate in BAWSCA's Regional Water Conservation Program.

> BAWSCA led its member agencies in a multi-year effort to develop and implement a strategy to meet these new legislative requirements. BAWSCA's Making Conservation a Way of Life Strategic Plan (Strategic Plan) provided a detailed roadmap for member agencies to improve water efficiency. BAWSCA implementing the following elements of the Strategic Plan:
>
> - Conducted an assessment of the agencies' current practices and water industry best practices for three components of the efficiency legislation that, based on a preliminary review, present the greatest level of uncertainty and potential risk to the BAWSCA agencies. The three components were:
>   1. Development of outdoor water use budgets in a manner that incorporates landscape area, local climate, and new satellite imagery data.
>   2. Commercial, Industrial, and Institutional water use performance measures.
>   3. Water loss requirements.
> - Organized an Advanced Metering Infrastructure symposium to enable information exchange, including case studies, implementation strategies, and data analysis techniques.

- Initiated a regional CII audit pilot program, which BAWSCA aims to complete in 2021.[31]
- Implemented a regional program for water loss control to help BAWSCA agencies comply with regulatory requirements and implement cost-effective water loss interventions.
- Engaged with the SFPUC to audit meter testing and calibration practices for SFPUC's meters at BAWSCA agency turnouts.

Finally, BAWSCA's Demand Study developed water demand and conservation projections through 2045 for each BAWSCA agency. These projects are designed to provide valuable insights on long-term water demand patterns and conservation savings potential to support regional efforts, such as implementation of BAWSCA's Long-Term Reliable Water Supply Strategy.

As described in Section 4.2, East Palo Alto's 2021 Demand Management Decision Support System Model (DSS Model) estimates projected water demands and quantifies passive and active conservation water savings potential. As discussed in Section 4.7, the DSS Model projections demonstrate that per capita indoor residential potable water use within East Palo Alto is expected to be below the indoor use standards presented in the legislation.

[31] Efforts on the CII audit pilot program stalled in March 2020 due to the COVID 19 pandemic and related shelter-in-place orders.

Table 9-1 Summary of DMMs and Implementation over the Past Five Years (2015-2020)

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
1	Water Waste Prevention Ordinances	SFR, MFR, CII And IRR	Chapter 17.04 of the City's Municipal Code prohibits water waste within the City. The City has prohibited the unreasonable use of water, which is defined as the failure to take appropriate measures to minimize excess application and incidental losses of water.	The requirements of Chapter 17.04 of the City's Municipal Code are enforced at all times.
2	Metering	SFR, MFR, CII And IRR	The City requires meters on all connections to the water distribution system, including detector check meters on new private fire protection services. Currently, there are no known unmetered connections to the water distribution. All new commercial and industrial developments are required to have dedicated water meters for landscape irrigation.	All accounts are metered and read on a monthly basis.
3	Conservation Pricing	SFR, MFR, CII And IRR	The current water rate structure includes a uniform charge based on volume of water usage: https://www.eastpaloaltowater.com/pages/customer-service/rates/.	
4	Water Efficient Landscape Education Classes	SFR, MFR	Free classes developed by BAWSCA provide information regarding water efficient landscaping. The classes focus on creating beautiful, water-efficient gardens as an alternative to lawns, and include "Lawn Replacement 101," "Drought Tolerant Plants," and "From Graywater to Green Garden," among others. The City participates through the BAWSCA Regional Water Conservation Program.	
5	Leak Investigations	UFW	In an effort to minimize water system loss, Veolia North America conducts leak investigations on behalf of the City. The City estimates that each leak investigation saves approximately 3,000 gallons	FY 2015-16 through FY 2019-20: unknown
6	Conservation Program Coordination and Staff	SFR, MFR, CII And IRR	The City employs coordination staff and funds the water conservation program.	The water conservation program is coordinated and administered by the City Engineer.

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
7	Rain Barrel Rebate	SFR, MFR	The City offers rain barrel rebates of up to $200 to its residential customers through the San Mateo Countywide Water Pollution Prevention Program.	San Mateo County tracks the number of participants countywide, however they do not track by individual City

10. PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Preparation of the Urban Water Management Plan (UWMP) and the Water Shortage Contingency Plan (WSCP) began in November 2020 for completion in July 2021, with notifications and interactions between stakeholders as discussed further below.

10.1 Notification of UWMP Preparation

☑ ***CWC § 10621 (b)***

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

On 4 February 2021 and 12 March 2021, the City of East Palo Alto (City or East Palo Alto) sent a letter to 51 recipients from 26 agencies, including the San Francisco Public Utilities Commission (SFPUC), Bay Area Water Supply and Conservation Agency (BAWSCA), each BAWSCA member agency, San Mateo County, and other local agencies informing them that East Palo Alto was in the process of updating its UWMP and WSCP and soliciting their input in the update process. A listed of the entities contacted is provided in Table 2-4 and Appendix B. The letter was sent more than 60 days before the public hearing as required by code. A sample outreach letter is included in Appendix B.

10.2 Notification of Public Hearing

☑ ***CWC § 10642***

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

10.2.1 Notice to Cities and Counties

On 1 June 2021, East Palo Alto sent a letter to each of the above-mentioned entities informing them of the locations the Public Review Draft 2020 UWMP and the updated WSCP would be available for review and welcoming their input and comments on the document. The Public Review Draft 2020 UWMP and the WSCP was available for public review at the City Hall and on the City's website. The letter also informed the agencies that the UWMP and WSCP public hearing would be occurring at City Hall on June 15, 2021. A sample copy of the notification letters is included in Appendix B.

10.2.2 Notice to the Public

On 1 June 2021 and 8 June 2021, East Palo Alto published a notice in the *San Mateo County Times* informing the public that the 2020 UWMP and the WSCP would be available for public review at City Hall and on the City's website, consistent with requirements of California Government Code 6066. The notice also informed the public that the 2020 UWMP and WSCP public hearing would be held at City Hall on 15 June 2021. Copies of the newspaper announcements are included in Appendix C.

10.3 Public Hearing and Adoption

☑ ***CWC § 10608.26***

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

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

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

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

As described above, East Palo Alto informed the public and the appropriate agencies of: (1) its intent to prepare a UWMP and the associated WSCP, (2) where the UWMP and WSCP were available for public review, and (3) when the public hearing regarding the UWMP and WSCP would be held. All notifications were completed in compliance with the stipulations of Section 6066 of the Government Code.

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

This UWMP was adopted by Resolution No. 87-2021 by the City Council during its 15 June 2021 City Council meeting. The WSCP included as Appendix J was adopted by Resolution No. 88-2021 during the same meeting. Copies of the resolutions are included in Appendix L.

10.4 Plan Submittal

☑ ***CWC § 10621***

(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

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

(c) An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(e) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

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

☑ ***CWC § 10635 (c)***

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

Copies of the adopted 2020 UWMP and WSCP will be provided to the Department of Water Resources (DWR), the California State Library, San Mateo County, and SFPUC within 30 days of the adoption. An electronic copy of the adopted 2020 UWMP will be submitted to the DWR using the DWR online submittal tool.

10.5 Public Availability

☑ ***CWC § 10645***

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

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

Copies of the adopted 2020 UWMP and associated WSCP will be available for public review in the City Hall during normal business hours and on the City's website within 30 days of filing the plan with DWR.

10.6 Amending an Adopted UWMP or Water Shortage Contingency Plan

☑ ***CWC § 10644 (b)***

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

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

11. REFERENCES

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DWR, 2021. *Guidebook for Urban Water Suppliers, 2015 Urban Water Management Plan,* dated April 2021.

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EKI/Todd/HydroFocus, 2018, *San Mateo Plain Groundwater Basin Assessment*, July 2018.

IRM, 2015. Water Supply Assessment, City of East Palo Alto General Plan Update, 29 January 2015.

Raimi and Associates, 2014. Existing Conditions Report: East Palo Alto General Plan Update, February 2014.

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SCVWD, 2016. *Groundwater Management Plan, Santa Clara and Llagas Subbasins*, November 2016.

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

Appendix A

Completed UWMP Checklist

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Chapter 1
x	x	Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Section 1.6
x	x	Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1
x	x	Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.2 and Table 2-4
x	x	Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Section 2.2.4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Section 2.2.2
	x	Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	N/A
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Chapter 3
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.1.1 and Table 3-1
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.1.3 and Table 3-3
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.1.1 and Table 3-1
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Sections 4.1 and 4.2, Tables 4-2 and 4-4
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.1.3
x	x	Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System Water Use	Section 4.2.4 and Table 4-6
x	x	Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.2.1
x	optional	Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.1.3 and Table 4-3
x	optional	Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.2.3 and Table 4-5
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.5
x		Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.4 and Table 5-3
	x	Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	N/A
x		Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A
x		Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	N/A
x		Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Section 5.4 and Table 5-4
x	x	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Chapter 6

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Section 7.1
x	x	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Chapter 6
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.8
x	x	Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.9 and Table 6-9
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
x	x	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.2.1

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	N/A
x	x	Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Section 6.2.1
x	x	Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Table 6-2
x	x	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.2.4
x	x	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7
x	x	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3
x	x	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.3
x	x	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4 and Table 6-5 and 6-6
x	x	Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5
x	x	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5
x	x	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6
x	x	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier’s service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 6.5.2 and Table 6-3 and 6-4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Section 6.8
x	x	Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.11 and Table 6-11
x	x	Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1.1.3
x	x	Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Chapter 7
x	x	Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.1 and Tables 7-3 through 7-5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.2
x	x	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.2.1 and Table 7-6
x	x	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.2.2 and Table 7-7
x	x	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.2.3 and Table 7-8
x	x	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Section 7.5
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix J
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix J Section 2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix J Section 11
x	x	Section 8.2	10632(a)(2)(A)	Provide the written decision- making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix J Section 2
x	x	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix J Section 2
x	x	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix J Section 4
x	x	Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix J Section 4 and Table 4-1

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix J Section 5.2 and Table 5-2
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix J Section 5.1 and Table 5-1
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix J Section 5.3
x	x	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix J Section 5.4
x	x	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix J Section 5.1 and 5.2 and Table 5-1 and 5-2
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix J Section 5.6
x	x	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix J Section 6

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix J Section 6
x		Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Appendix J Section 7
x	x	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix J Section 8
x	x	Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix J Section 6.1.1
x	x	Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix J Section 6.1.1
x	x	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix J Section 9
x	x	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix J Section 9

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x		Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix J Section 9
x		Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix J Section 10
x		Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix J Section 12
x	x	Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Appendix J Section 13
x	x	Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix J Section 13

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
	x	Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	N/A
x		Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Section 9.1 and 9.2
x		Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Section 10.3
x	x	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 10.1
x	x	Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 10.4

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

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
x	x	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5
x	x	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5
x	x	Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	N/A
x	x	Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 10.6

Appendix B

UWMP Agency Notification Letters

Tyler Colyer

From: Batool Zaro <bzaro@cityofepa.org>
Sent: Thursday, February 04, 2021 4:34 PM
To: dsmithson@calwater.com; kjenkins@calwater.com; Rmoilan@calwater.com; Jflanagan@ci.brisbane.ca.us; rbreault@ci.brisbane.ca.us; tmcauliffe@burlingame.org; amorimoto@burlingame.org; gkrauss@dalycity.org; wdonnelly@dalycity.org; Cheryl.Munoz@Hayward-ca.gov; alex.ameri@hayward-ca.gov; Elli.Lo@hayward-ca.gov; whej@haywardrec.org; ctlamm@menlopark.org; phlowe@menlopark.org; klim@ci.millbrae.ca.us; sreider@ci.millbrae.ca.us; tndah@ci.milpitas.ca.gov; Elizabeth.Flegel@mountainview.gov; Lisa.au@mountainview.gov; Karla.Dailey@CityofPaloAlto.org; lisa.bilar@CityofPaloAlto.org; jchapel@redwoodcity.org; WateRmanager@redwoodcity.org; jtan@sanbruno.ca.gov; MReinhardt@sanbruno.ca.gov; gwelling@santaclaraca.gov; smehta@SantaClaraCA.gov; mnasser@ci.sunnyvale.ca.us; Rchinnakotla@sunnyvale.ca.gov; cbrennan@coastsidewater.org; mrogren@coastsidewater.org; Sergio Ramirez; Akin Okupe; ndorais@fostercity.org; asmith@fostercity.org; tammyr@midpeninsulawater.org; rramirez@midpeninsulawater.org; acarr@nccwd.com; philw@purissimawater.org; samv@purissimawater.org; Jeffrey.provenzano@sanjoseca.gov; henry.louie@sanjoseca.gov; Bmanning@stanford.edu; juliann@stanford.edu; pwillis@hillsborough.net; dbarrow@westboroughwater.com; pmairena@westboroughwater.org; Nicole Sandkulla; Tom Francis; dmcpherson@bawsca.org; Negin Ashoori; Kyle Ramey; jzipkin@ebda.org; michael.tognolini@ebmud.com; Albert.Lopez@acgov.org; leonard.ash@acwd.com
Cc: Adrian Biggs; Humza Javed; Perez, Richard J; Tyler Colyer; Kamal Fallaha
Subject: Preparation of City of Eat Palo Alto 2020 Urban Water Management Plan
Attachments: 2020 UWMP Notice to Regional Agencies.pdf

Good Afternoon,

Please see the attached for the City of East Palo Alto 2020 UWMP Notice to Regional Agencies letter. Please let me know if you have any questions!

Best,

Batool Zaro, EIT
Assistant Civil Engineer
City of East Palo Alto
Engineering Division
1960 Tate Street
East Palo Alto, CA 94303
Cell: (650) 388-8921
Email: bzaro@cityofepa.org

CITY OF EAST PALO ALTO
Public Works Department
1960 Tate Street, East Palo Alto, CA 94303
Tel. No. 650.853.3189, Fax. No. 650.853.3179

February 4, 2021

To Whom It May Concern,

Re: **Notice of Preparation of Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of East Palo Alto (City) to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City is currently reviewing its existing UWMP and associated WSCP, which were updated in 2016, and considering revisions to the documents. The updated UWMP and WSCP are due by July 1, 2021. We invite your agency/city/county's participation in this revision process.

A draft of the 2020 UWMP and WSCP will be made available for public review and a public hearing will be scheduled in Spring 2021. In the meantime, if you would like more information regarding the City's 2015 UWMP and WSCP and the schedule for updating these documents, or if you would like to participate in the preparation of the 2020 UWMP and WSCP, please contact Batool Zaro at:

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 388-8921
Email: bzaro@cityofepa.org
Batool Zaro, Assistant Engineer

Sincerely,

Kamal Fallaha

Kamal Fallaha, P.E.
Public Works Director
City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
650-853-3117 kfallaha@cityofepa.org

CC: Jaime Fontes, City Manager, City of East Palo Alto
Rafael Alvarado, City Attorney, City of East Palo Alto

Tyler Colyer

From: Batool Zaro <bzaro@cityofepa.org>
Sent: Friday, March 12, 2021 8:50 AM
To: Jim Porter; sritchie@sfwater.org; aakastama@sfwater.org; striolo@sfwater.org
Cc: Tyler Colyer; Anona Dutton
Subject: Preparation of City of East Palo Alto 2020 Urban Water Management Plan
Attachments: 2020 UWMP Notice to Regional Agencies.pdf

Good Morning,

Please see the attached for the City of East Palo Alto 2020 UWMP Notice to Regional Agencies letter. Please let me know if you have any questions!

Best,
Batool Zaro, EIT
Assistant Civil Engineer
City of East Palo Alto
Engineering Division
1960 Tate Street
East Palo Alto, CA 94303
Cell: (650) 388-8921
Email: bzaro@cityofepa.org

CITY OF EAST PALO ALTO

Public Works Department
1960 Tate Street, East Palo Alto, CA 94303
Tel. No. 650.853.3189, Fax. No. 650.853.3179

March 12, 2021

To Whom It May Concern,

Re: **Notice of Preparation of Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of East Palo Alto (City) to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City is currently reviewing its existing UWMP and associated WSCP, which were updated in 2016, and considering revisions to the documents. The updated UWMP and WSCP are due by July 1, 2021. We invite your agency/city/county's participation in this revision process.

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City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 388-8921
Email: bzaro@cityofepa.org
Batool Zaro, Assistant Engineer

Sincerely,

Kamal Fallaha

Kamal Fallaha, P.E.
Public Works Director
City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
650-853-3117 kfallaha@cityofepa.org

CC: Jaime Fontes, City Manager, City of East Palo Alto
Rafael Alvarado, City Attorney, City of East Palo Alto

Tyler Colyer

From: Batool Zaro <bzaro@cityofepa.org>
Sent: Friday, May 28, 2021 2:49 PM
To: dsmithson@calwater.com; kjenkins@calwater.com; Rmoilan@calwater.com; Jflanagan@ci.brisbane.ca.us; rbreault@ci.brisbane.ca.us; tmcauliffe@burlingame.org; amorimoto@burlingame.org; gkrauss@dalycity.org; wdonnelly@dalycity.org; Cheryl.Munoz@Hayward-ca.gov; alex.ameri@hayward-ca.gov; Elli.Lo@hayward-ca.gov; whej@haywardrec.org; ctlamm@menlopark.org; phlowe@menlopark.org; klim@ci.millbrae.ca.us; sreider@ci.millbrae.ca.us; tndah@ci.milpitas.ca.gov; Elizabeth.Flegel@mountainview.gov; Lisa.au@mountainview.gov; Karla.Dailey@CityofPaloAlto.org; lisa.bilar@CityofPaloAlto.org; jchapel@redwoodcity.org; WateRmanager@redwoodcity.org; jtan@sanbruno.ca.gov; MReinhardt@sanbruno.ca.gov; gwelling@santaclaraca.gov; smehta@SantaClaraCA.gov; mnasser@ci.sunnyvale.ca.us; Rchinnakotla@sunnyvale.ca.gov; cbrennan@coastsidewater.org; mrogren@coastsidewater.org; Sergio Ramirez; Akin Okupe; ndorais@fostercity.org; asmith@fostercity.org; tammyr@midpeninsulawater.org; rramirez@midpeninsulawater.org; acarr@nccwd.com; philw@purissimawater.org; samv@purissimawater.org; Jeffrey.provenzano@sanjoseca.gov; henry.louie@sanjoseca.gov; Bmanning@stanford.edu; juliann@stanford.edu; pwillis@hillsborough.net; dbarrow@westboroughwater.com; pmairena@westboroughwater.org; Nicole Sandkulla; Tom Francis; dmcpherson@bawsca.org; Negin Ashoori; Kyle Ramey; jzipkin@ebda.org; michael.tognolini@ebmud.com; Albert.Lopez@acgov.org; O'Connor Water; Leonard Ash; niambi lincoln; Jim Porter; sritchie@sfwater.org; aakastama@sfwater.org; striolo@sfwater.org
Cc: Tyler Colyer; Anona Dutton; Kamal Fallaha; Humza Javed; Adrian Biggs
Subject: Public Hearing Notice for the Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update
Attachments: Public Hearing Notice_EPA UWMP_WSCP.pdf

Good Afternoon,

Please see the attached for the City of East Palo Alto’s Public Hearing Notice for the 2020 Urban Water Management Plan and Water Shortage Contingency Plan .

Best,
Batool Zaro, EIT
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City of East Palo Alto
Engineering Division
1960 Tate Street
East Palo Alto, CA 94303
Cell: (650) 388-8921
Email: bzaro@cityofepa.org

CITY OF EAST PALO ALTO

Public Works Department - Engineering Division
1960 Tate Street, East Palo Alto, CA 94303
Tel. No. 650.853.3189, Fax. No. 650.853.3179

May 28, 2021

Re: **Public Hearing Notice for the Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update**

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of East Palo Alto (City or East Palo Alto) to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. East Palo Alto must also make the draft documents available for public review and hold a public hearing before adopting its UWMP and associated WSCP.

This is to notify you that the City will hold a public hearing on June 15, 2021 at 6:30 p.m. by virtual meeting to consider proposed revisions and updates to the 2020 UWMP and associated WSCP. We invite your agency's participation in the process. In conjunction with the update to the UWMP, the public may also provide input on the urban water use target included in the UWMP, any impacts to the local economy, and East Palo Alto's method of determining its urban water use target.

The UWMP and associated WSCP are available for public review at https://www.cityofepa.org/publicworks/project/urban-water-management-plan-update-2020. Visit https://www.cityofepa.org/citycouncil for the City Council meeting agenda and for links to the virtual public hearing.

If you have any questions about the 2020 UWMP or WSCP or the process for updating these documents, please contact Batool Zaro at:

City of East Palo Alto
1960 Tate Street
East Palo Alto, CA 94303
Phone: (650) 388-8921
Email: bzaro@cityofepa.org

Sincerely,

Kamal Fallaha, P.E.
Public Works Director

CC: Jaime Fontes, City Manager, City of East Palo Alto
Rafael Alvarado, City Attorney, City of East Palo Alto

Appendix C

UWMP Public Notification Notices

San Mateo County Times
c/o Bay Area News Group
4 N. 2nd Street Suite 700
San Jose, CA 95113
408-920-5332

3342777

CITY OF EAST PALO ALTO
ATTN: CITY CLERK'S OFFICE/MARIA BUELL
2415 UNIVERSITY AVE 2ND FLOOR
EAST PALO ALTO, CA 94303

PROOF OF PUBLICATION

FILE NO. S.Wendt: Public Hearing 2020 UWMP

In the matter of

San Mateo County Times

The undersigned deposes that he/she is the Public Notice Advertising Clerk of the SAN MATEO COUNTY TIMES, a newspaper of general circulation as defined by Government Code Section 6000, adjudicated as such by the Superior Court of the State of California, County of San Mateo (Order Nos. 55795 on September 21, 1951), which is published and circulated in said county and state daily (Sunday excepted).

The PUBLIC NOTICE

was published in every issue of the SAN MATEO COUNTY TIMES on the following date(s):

06/01/2021, 06/08/2021

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated: June 8, 2021

Public Notice Advertising Clerk

Legal No. **0006579808**

NOTICE IS HERBY GIVEN that the City of East Palo Alto, California, will hold a PUBLIC HEARING on June 15, 2021 at 6:30 p.m. by virtual meeting to consider proposed revisions and updates to the 2020 Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP). In conjunction with the update to the UWMP, the public may also provide input on the urban water use target included in the UWMP, any impacts to the local economy, and East Palo Alto's method of determining its urban water use target.

Public Draft Release Date: Friday May 28, 2021 (Updated Date)

Public Hearing: Tuesday, June 15, 2021 at 6:30 p.m. at City Hall, 2415 University Avenue, East Palo Alto, CA via a ZOOM call. Visit https://www.cityofepa.org/citycouncil for the City Council meeting agenda and for links to the virtual public hearing.

Please contact Batool Zaro at bzaro@cityofepa.org or (650)388-8921 with any questions. The UWMP and associated WSCP are available for public review at https://www.cityofepa.org/publicworks/project/urban-water-management-plan-update-2020.

SMCT#6579808; June 1,8,2021

Appendix D

SB X7-7 Compliance Tables

SB X7-7 2020 Compliance Form

The SB X7-7 2020 Compliance Form **is for the calculation of 2020 compliance only. All retail suppliers must complete the SB X7-7 Compliance Form.** Baseline and target calculations are done in the SB X 7-7 Verification Form.

The SB X7-7 Verification Form is for the calculation of baselines and targets and is a separate workbook from the SB X7-7 2020 Compliance Form. Most Suppliers will have completed the SB X7-7 Verification Form with their 2015 UWMP and do not need to complete this form again in 2020. See Chapter 5 Section 5.3 of the UWMP Guidebook for more information regarding which Suppliers must, or may, complete the SB X7-7 Verification Form for their 2020 UWMP. 2020 compliance calculations are done in the SB X7-7 2020 Compliance Form.

Process Water Deduction tables will not be entered into WUE Data Portal tables.
SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D
A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE Data Portal, and include them in its UWMP.

Where to submit? Suppliers submit the completed table data and UWMPs (including the Water Shortage Contingency Plan) electronically through the WUE Data Portal (https://wuedata.water.ca.gov/). The portal will be updated in Spring 2021 and will be announced to the urban listserv, DWR webpage and WUE Data Portal opening page when it is available for plan and table submittals.

Unlocking templates (use with caution): The templates provided in this workbook are formated to mirror the structure of information that is submitted through the WUE Data Portal for the electronic submission of Submittal Tables in the UWMP. The tables are offered in a protected (locked) version to maintain the structure of the templates. However, for those needing to adjust the tables for their own planning needs beyond the Submittal Tables, the password to 'unprotect' each worksheet is 'dwr' (no quotes). To unprotect the worksheet, go to the Review tab, select Unprotect Sheet, and enter the password 'dwr' in the pop-up (no quotes). Preparers will still need to submit the information using the original template structure provided. To redownload the templates in their original format, visit https://wuedata.water.ca.gov in the Resources button of the Urban Water Management Plan section (no login necessary).

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Million Gallons
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	25,935
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use							
		2020 Deductions					
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Exported Water** *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	**2020 Gross Water Use**
	572			-		-	**572**

* **Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	SFPUC		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☑	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	572	-	572

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* *[2]* ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water ***Fm SB X7-7 Table 4***	**2020 Population** ***Fm SB X7-7 Table 3***	**2020 GPCD**
572	25,935	**60**
NOTES:		

SB X7-7 Table 9: 2020 Compliance							
Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD					2020 Confirmed Target GPCD [1, 2]	Did Supplier Achieve Targeted Reduction for 2020?
	Enter "0" if Adjustment Not Used			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*		
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
60	-	-	-	-	60	124	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

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

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
82	N/A	124	**124**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES:

Appendix E

Conceptual Analysis of Adding O'Connor Tract Co-operative Water Company and Palo Alto Park Mutual Water Company Systems into the City of East Palo Alto's Service Area

1. INTRODUCTION

The following appendix describes the potential impacts of incorporating the O'Connor Tract Co-operative Water Company (O'Connor Tract) and the Palo Alto Park Mutual Water Company (PAPMWC) water systems into the City of East Palo Alto's (City's or East Palo Alto's) service area. This analysis is purely conceptual and the City does not currently have plans to add either system into its service area. Included is an analysis of: (1) additional water demands that would be incurred by the City from absorption of the two systems; and (2) the potential effects on water supply reliability assuming assimilation of the O'Connor Tract's and PAPMWC's groundwater supply wells into the City's water supply portfolio.

As discussed below and shown in the following charts, cutbacks to the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) are significantly offset in both supply reliability scenarios with the inclusion of the O'Connor Tract and PAPMWC supplies during multiple dry year conditions.

2. SYSTEM DESCRIPTIONS

The O'Connor Tract and PAPMWC serve customers in or around the City's sphere of influence. The O'Connor Tract (Public Water System [PWS] #CA4110019) serves a population of approximately 3,130 customers via 348 connections in portions of Menlo Park and East Palo Alto, while PAPMWC (PWS #CA4110020) serves approximately 2,900 customers via 692 connections in East Palo Alto. The O'Connor Tract serves entirely residential customers, while PAPMWC serves primarily residential customers along with three commercial customers. Below is a summary of each system's water infrastructure:

<u>O'Connor Tract</u>

- Two groundwater production wells with a total production rate of 740 gallons per minute (gpm);
- Chlorine storage and injection;
- One triplex pump station;
- One 100,000-gallon potable water storage tank;
- Two hydropneumatic tanks; and
- Two emergency connections (East Palo Alto and Menlo Park).

<u>PAPMWC</u>

- Five wells (one permanently off-line, one temporarily off-line) with a total production rate of 1,790 gpm[1];
- Chlorine storage and injection;

[1] Total production rate is based on historical flow rates provided by PAPMWC, excluding the well that is permanently off-line.

- One duplex pump station;
- One 350,000-gallon tank; and
- One 11,500-gallon tank.

3. HISTORICAL AND PROJECTED WATER DEMAND

This section documents historical water use by the O'Connor Tract and PAPMWC from 2016-2020 and discusses the basis, methodology, and resulting projected total water demands for the two systems through 2045. For comparison purposes, the City's historical and projected demands (as described in the City's 2020 Urban Water Management Plan [UWMP]; see Tables 4-2 and 4-4) have also been included.

3.1 Historical Water Demand

All demands within both the O'Connor Tract and PAPMWC service areas are currently met with potable water produced from groundwater supply wells. The current and historical water demands include the water consumed by metered accounts in the service area ("metered water consumption") and the water that is lost within the distribution system or otherwise unaccounted for (i.e., "losses"). Water demands during the 2016-2020 time period for the O'Connor Tract and PAPMWC are shown below in Table 1[2].

Table 1 Historical Water Demand

System	Volume					
	2016	2017	2018	2019	2020	**Average (2017-2018)**
O'Connor Tract	80	86	90	90	97	**88**
PAPMWC	114	124	126	105	112	**125**
East Palo Alto	514	550	566	556	572	**--**

NOTES:
(a) Volumes are in units of MG.
(b) Data are presented on a fiscal-year basis.
(c) The average water use for 2017 and 2018 was used to represent "average post-drought usage" for PAPMWC and O'Connor Tract because it excludes anomalous years (i.e., complete data for 2016, 2019 and 2020 were not available for PAPMWC, and water use in 2020 for O'Connor Tract appears to be impacted by COVID 19 restrictions).
(d) East Palo Alto water demands are from Table 4-2 of the UWMP.

[2] Historical demands for the O'Connor Tract are based on monthly metered consumption data, while demands for PAPMWC are based on monthly well production data.

3.2 Projected Residential Per Capita Water Use

Table 2 below shows the projected per capita residential water use for each system in gallons per capita per day (GPCD) for 2025. As shown in Table 4-8 of the UWMP, the per capita residential usage within the City is projected to remain constant between 2025 and 2045. Therefore, for this analysis, it is assumed that per capita residential water use within O'Connor Tract and PAPMWC would also remain constant during this planning period. As shown in Table 2, given that per capita water use for both the O'Connor Tract and PAPMWC is substantially higher than for the City, there are likely water conservation opportunities that could be realized within those systems.

Table 2 2025 Per Capita Residential Water Use

System	Population	Residential Potable Water Demand (MG) in 2025	Per Capita Residential Potable Water Use (GPCD) in 2025
O'Connor Tract	3,128	88	77
PAPMWC	2,900	123	116
East Palo Alto	27,215	529	53

NOTES:
(a) 2025 water demands for the O'Connor Tract and PAPMWC are assumed to stay fixed at the values shown in Table 1, exclusive of PAPMWC's commercial usage. The population of both systems is assumed to remain fixed.
(b) East Palo Alto 2025 population and water demands are from Table 3-1 and Table 4-4 of the City's UWMP, respectively.

3.3 Projected Potable Water Demand

The future water demands for the O'Connor Tract and PAPMWC were estimated by evaluating average demand for each system and assuming limited growth within each systems' respective service area.

Specifically, as shown in Table 1, average historical water demand between 2017 and 2018 was used for as the basis to estimate projected water demands for each system, because it appears that those years include complete data and best represent post-drought, pre-COVID water demands[3]. Given that both the O'Connor Tract and PAPMWC are largely built out, the population of each of the systems is not expected to increase significantly through the planning horizon, and, as discussed in Section 3.2, per capita usage is assumed to remain constant. Therefore, water demands are also conservatively projected to remain constant at the post-drought level of usage.

Table 3 below mirrors Table 4-4 in the UWMP and shows the projected demands for the O'Connor Tract, PAPMWC, and the City for the 2025-2045 planning period. Demands for the O'Connor Tract and PAPMWC do not consider water savings due to passive and active conservation, whereas demands for the City include water savings due to passive conservation.

[3] Complete data was not available in 2016, 2019, and 2020 for PAPMWC, and demands for O'Connor Tract were potentially impacted by COVID 19 stay-at-home orders.

Table 3 Projected Potable Water Demand

System	Volume				
	2025	2030	2035	2040	2045
O'Connor Tract (b)	88	88	88	88	88
PAPMWC (b)	125	125	125	125	125
City of East Palo Alto (c)	692	721	779	927	1,078
TOTAL	905	934	991	1,140	1,290

NOTES:
(a) Volumes are in units of MG.
(b) Values from Table 1. Demand projections for O'Connor Tract and PAPMWC do not include estimates of passive or active water conservation savings.
(c) See Table 4-4 of the City's UWMP.

4. WATER SUPPLY RELIABILITY

This section includes an analysis of the potential impacts and benefits on water supply reliability of incorporating the O'Connor Tract and PAPMWC into the City's distribution system.

4.1 East Palo Alto Water Supply Availability

As discussed in Section 6.9 of the City's UWMP, normal year supply projections for East Palo Alto include water supplied by the SFPUC RWS, as well as local groundwater supplied by the City's Gloria Way groundwater well. Normal year SFPUC RWS water supply availability is based on the City's Individual Supply Guarantee (ISG) of 3.46 million gallons per day (MGD), or 1,264 MG per year.

Under dry year conditions, SFPUC water supply availability is based on a percentage of the City's demands, consistent with the revised Bay Area Water Supply and Conservation Agency (BAWSCA) Drought Methodology that assumes equal percentage cutbacks across all Wholesale Agencies supplied by SFPUC (see Appendix G of the City's UWMP). More information regarding dry year supply availability can be found in Section 7.1 of the City's UWMP. Table 4 below (consistent with Table 7-2 of the City's UWMP) shows the projected water supply availability under normal and dry year conditions for the City per the projections and assumed allocations provided by SFPUC and BAWSCA.

Table 4 Projected SFPUC Water Supply Availability

Base Year	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
2025	100%	64%	64%	55%	55%	55%	55%
2030	100%	64%	64%	55%	55%	55%	55%
2035	100%	64%	64%	54%	54%	54%	50%
2040	100%	63%	63%	54%	54%	48%	48%
2045	100%	54%	54%	54%	54%	46%	46%

NOTES:
(a) Normal-year water supply availability is presented in terms of percentage of East Palo Alto's ISG (3.46 MGD).
(b) Dry-year water supply availability is presented in terms of percentage of projected RWS demands for each base year (Table 3) consistent the revised BAWSCA Drought Methodology that assumes equal percent cutbacks across all Wholesale Agencies.
(c) Results reflect scenario with Bay-Delta Plan Amendment implemented in 2023 and the use projected RWS purchases.

Table 5 below shows the projected SFPUC RWS water supply availability based on the demands shown in Table 3 and the percentages shown for single and multiple dry years in Table 4.

Table 5 Projected SFPUC Water Supply Availability – Volumes

Base Year	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
2025	905	579	579	498	498	498	498
2030	934	598	598	513	513	513	513
2035	991	634	634	535	535	535	496
2040	1,140	718	718	615	615	547	547
2045	1,290	697	697	697	697	594	594

NOTES:
(a) Volumes are in units of MG.
(b) Water supply availability is based on the demands shown in Table 3 multiplied by the percentages shown for single and multiple dry years in Table 4.

4.2 Water Service Reliability – Normal Year

Table 6 and the associated chart below mirrors Table 7-3 in the City's UWMP and shows the projected supply and demand totals under normal year conditions. It is expected that, under normal conditions, both the O'Connor Tract and PAPMWC demands could be met primarily by East Palo Alto's water supply from the SFPUC RWS (more information regarding the City's normal year supply availability can be found in Section 7.1 of the City's UWMP). It is estimated that approximately 16 MG of water would be supplied by the O'Connor Tract and PAPMWC groundwater wells as part of regular well maintenance[4].

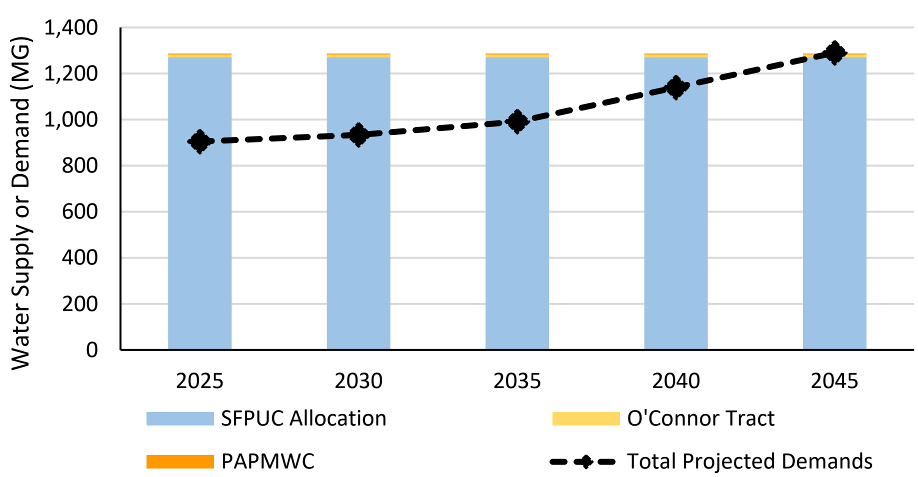
With the inclusion of the O'Connor Tract and PAPMWC water demands, the City is expected to have adequate water supplies during normal years to meet its projected demands through 2040, but would experience a slight supply shortfall by 2045 unless the City's groundwater production were increased. As discussed in Section 3.2, demands for the O'Connor Tract and PAPMWC do not include estimates of passive or active conservation savings, and thus demands for these systems could potentially be reduced through incorporation of those system's customers into the City's water conservation programs.

Table 6 Normal Year Supply and Demand Comparison (DWR Table 7-2)

	2025	2030	2035	2040	2045
Supply totals	1,287	1,287	1,287	1,287	1,287
Demand totals	905	934	991	1,140	1,290
Difference	382	353	296	147	(4)

NOTES:
(a) Volumes are in units of MG.
(b) Supply volumes include the City's SFPUC RWS, the City's Gloria Way well, and a baseline production of 16 MG from the O'Connor Tract's and PAPMWC's groundwater wells.

Chart 6 Normal Year Supply vs. Demand



[4] Normal year well production for the O'Connor Tract and PAPMWC is based on an assumption that each well would be operated for two hours per week to support well maintenance, or 104 hours of production per year. The wells in O'Connor Tract have a total flow rate of 740 gpm, and the wells in PAPMWC have a total flow rate of 1,790 gpm.

4.3 O'Connor Tract and PAPMWC Dry Year Water Supply Availability Scenarios

Under dry year water supply conditions, it is assumed that the O'Connor Tract and PAPMWC wells would be available to help meet potential supply shortfalls from the SFPUC RWS. Two scenarios are presented below detailing the City's potential supply reliability under dry year conditions, as well as the impacts on the City's reliability estimates for single dry year and multiple dry year conditions under each scenario.

Scenario 1 assumes that the water supplies available from the O'Connor Tract and PAPMWC systems during dry years would be equal to the maximum annual demand (production) of each system over the last five years (i.e., 97 MG in 2020 from the O'Connor Tract and 126 MG from PAPMWC in 2018) based on production records provided by PAPMWC and O'Connor Tract.

Scenario 2 assumes that that the water supplies available from the O'Connor Tract and PAPMWC systems during dry years would be equal to the maximum monthly demand (production) of each system from the last five years (i.e., 9.5 MG in June 2020 for the O'Connor Tract and 15 MG in August 2016 for PAPMWC) based on production records provided by PAPMWC and O'Connor Tract.

These two scenarios represent a potential range of supplemental water supplies that could be available to the City during dry years to offset the cutbacks from the SFPUC RWS.

4.3.1 O'Connor Tract and PAPMWC Dry Year Water Supply Availability - Scenario 1

As described above, Scenario 1 assumes that the maximum annual demand from the O'Connor Tract and PAPMWC systems from the last five years will be available as a supplemental supply source through 2045. Table 7 below shows the assumed availability of dry-year supply for the O'Connor Tract and PAPMWC based on the maximum annual demand, as well as projected supplies for the City's Gloria Way well. Supply volumes from the SFPUC RWS under normal, single dry and multiple dry year conditions are shown above in Table 5.

Table 7 Projected Dry Year Groundwater Supply Availability (Scenario 1)

System	Volume				
	2025	2030	2035	2040	2045
O'Connor Tract (b)	97	97	97	97	97
PAPMWC (b)	126	126	126	126	126
City Well(s) (c)	7	7	7	7	7
TOTAL	229	229	229	229	229

NOTES:
(a) Volumes are in units of MG.
(b) Supplies are based on the maximum annual demand (production) of each system from the last five years based on production records provided by PAPMWC and O'Connor Tract.
(c) Assumes Gloria Way Well production at 150 gpm for 7 hours per day and 2 days per week, based on current operation.

4.3.1.1 *Water Service Reliability – Single Dry Year (Scenario 1)*

Table 8 below mirrors Table 7-4 in the UWMP and shows the projected supply and demand totals under single dry year conditions under Scenario 1[5]. Under these conditions, it is expected that water supplies from the O'Connor Tract and PAPMWC wells will be available to help offset supply shortfalls experienced by the City.

Table 8 Single Dry Year Supply and Demand Comparison (Scenario 1) (DWR Table 7-3)

	2025	2030	2035	2040	2045
Supply totals	808	827	864	947	926
Demand totals	905	934	991	1,140	1,290
Difference	(96)	(107)	(128)	(192)	(364)

NOTES:
(a) Volumes are in units of MG.
(b) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PAPMWC groundwater wells (Table 7).

4.3.1.2 *Water Service Reliability – Multiple Dry Years (Scenario 1)*

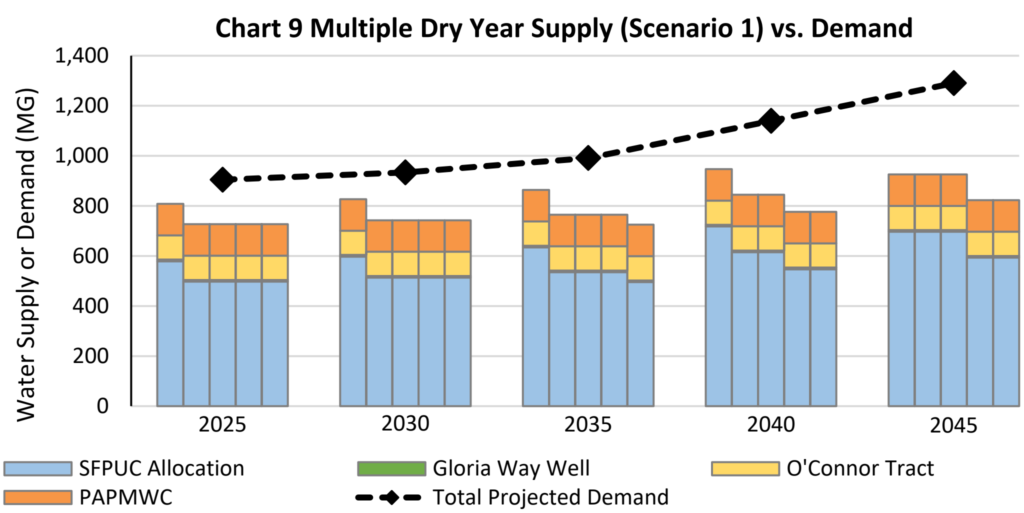
Table 9 and the associated chart below mirrors Table 7-5 in the UWMP and shows the projected supply and demand totals under multiple dry year conditions under Scenario 1[5].Under these conditions, it is expected that water supplies from the O'Connor Tract and PAPMWC wells will be available to help offset supply shortfalls experienced by the City.

[5] As described above, supplies include the volumes listed in Table 7 as well as the projected allocation from the SFPUC RWS, which is based on a percentage of the City's demands, including demands from O'Connor Tract and PAPMWC (see Table 3).

Table 9 Multiple Dry Years Supply and Demand Comparison (Scenario 1) (DWR Table 7-4)

		2025	2030	2035	2040	2045
First year	Supply totals	808	827	864	947	926
	Demand totals	905	934	991	1,140	1,290
	Difference	(96)	(107)	(128)	(192)	(364)
Second year	Supply totals	727	743	765	845	926
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(227)	(295)	(364)
Third year	Supply totals	727	743	765	845	926
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(227)	(295)	(364)
Fourth year	Supply totals	727	743	765	776	823
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(227)	(363)	(468)
Fifth year	Supply totals	727	743	725	776	823
	Demand totals	905	934	991	1,140	1,290
	Difference	(178)	(191)	(266)	(363)	(468)

NOTES:
(a) Volumes are in units of MG.
(b) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PAPMWC groundwater wells (Table 7).



4.3.1.3 *Drought Risk Assessment (Scenario 1)*

In addition to the long-term water service reliability assessment presented above, the Drought Risk Assessment (DRA) evaluates the City's supply risks under a severe drought period lasting for the next five consecutive years after the assessment is completed, i.e., from 2021 through 2025. The DRA is intended to inform the demand management measures and water supply projects and programs to be included in the City's UWMP (see Appendix J and Section 9 of the main UWMP).

Table 10 below mirrors Table 7-8 in the UWMP and provides a comparison of the water supply sources available to East Palo Alto with the total projected water use for an assumed drought period of 2021 through 2025 with inclusion of additional supplies and demands from the O'Connor Tract and PAPMWC water systems under Scenario 1. The City is expected to experience significant shortfalls on the SFPUC RWS in years 2023-2025 of the DRA with unconstrained demands because of the assumed implementation of the Bay-Delta Plan Amendment in 2023, however added dry-year supply from the O'Connor Tract and PAPMWC water systems would significantly reduce the need for demand reduction measures over the next five years.

Table 10 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 1) (DWR Table 7-5)

2021	Total
Total Water Use	827
Total Supplies	827
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

2022	Total
Total Water Use	850
Total Supplies	850
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

Table 10 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 1) (DWR Table 7-5)

2023	Total
Total Water Use	875
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(421)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	354
WSCP - use reduction savings benefit	67
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	48%

2024	Total
Total Water Use	900
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(446)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	354
WSCP - use reduction savings benefit	92
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

2025	Total
Total Water Use	905
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(451)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	354
WSCP - use reduction savings benefit	97
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

NOTES:
(a) Volumes are in units of MG.
(b) Assumes use of Pad D well at 500 gpm, 12 hrs/day, year-round to augment supplies during the projected shortage of greater than 40%.
(c) Assumes dry-year supplies from Gloria Way, O'Connor Tract and PAPMWC wells at rates shown in Table 7.

Based on the above analysis, it appears that under Scenario 1, required demand cutbacks during single dry years would range from 11% - 28% and during multiple dry years would range from 20% - 36%.

Required demand cutbacks for both scenarios are significantly less than those presented in the UWMP (i.e., without wells from O'Connor Tract and PAPMWC). Those required demand cutbacks ranged from 17% - 34% during single dry years, and 26% - 42% during multiple dry years.

4.3.2 O'Connor Tract and PAPMWC Dry Year Water Supply Availability - Scenario 2

Under Scenario 2, projected dry year supplies for the O'Connor Tract and PAPMWC are estimated using the maximum monthly demand for each system from the last five years and multiplying that number by twelve months to get an annual supply. Table 11 below shows the assumed availability of dry-year supply for each system based on the maximum monthly demand from the last five years, as well as projected supplies for the City's Gloria Way well. Supply volumes from the SFPUC RWS under normal, single dry and multiple dry year conditions are shown above in Table 5.

Table 11 Projected Dry Year Groundwater Supply Availability (Scenario 2)

System	Volume				
	2025	2030	2035	2040	2045
O'Connor Tract (b)	123	123	123	123	123
PAPMWC (b)	179	179	179	179	179
City Well(s) (c)	7	7	7	7	7
TOTAL	308	308	308	308	308

NOTES:
(a) Volumes are in units of MG.
(b) Projected supplies are estimated based on the maximum monthly demand for each system from the last five years.
(c) Assumes Gloria Way Well production at 150 gpm for 7 hours per day and 2 days per week, based on current operation.

Although this supply scenario is based on a maximum monthly production rates that are assumed to occur year-round during a dry-year sequence, which may not be a normally sustainable operations scheme, it could be viable if operated as a conjunctive use program, wherein the City "stores" the groundwater during normal and wet years and extracts the water only during dry years. A conjunctive use program similar to the one described herein is currently being implemented in the Westside Basin by the SFPUC, the Cities of San Bruno and Daly City, and the California Water Service Company.

4.3.2.1 *Water Service Reliability – Single Dry Year (Scenario 2)*

Table 12 below mirrors Table 7-4 in the UWMP and shows the projected supply and demand totals under single dry year conditions under Scenario 2[6]. Under these conditions, it is expected that water supplies

[6] As described above, supplies include the volumes listed in Table 11 as well as the projected allocation from the SFPUC RWS, which is based on a percentage of the City's demands, including demands from O'Connor Tract and PAPMWC (see Table 3).

from the O'Connor Tract and PAPMWC wells will be available to help offset supply shortfalls experienced by the City.

Table 12 Single Dry Year Supply and Demand Comparison (Scenario 2) (DWR Table 7-3)

	2025	2030	2035	2040	2045
Supply totals	887	906	943	1,026	1,005
Demand totals	905	934	991	1,140	1,290
Difference	(17)	(28)	(48)	(113)	(285)

NOTES:
(c) Volumes are in units of MG.
(d) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PAPMWC groundwater wells (Table 11).

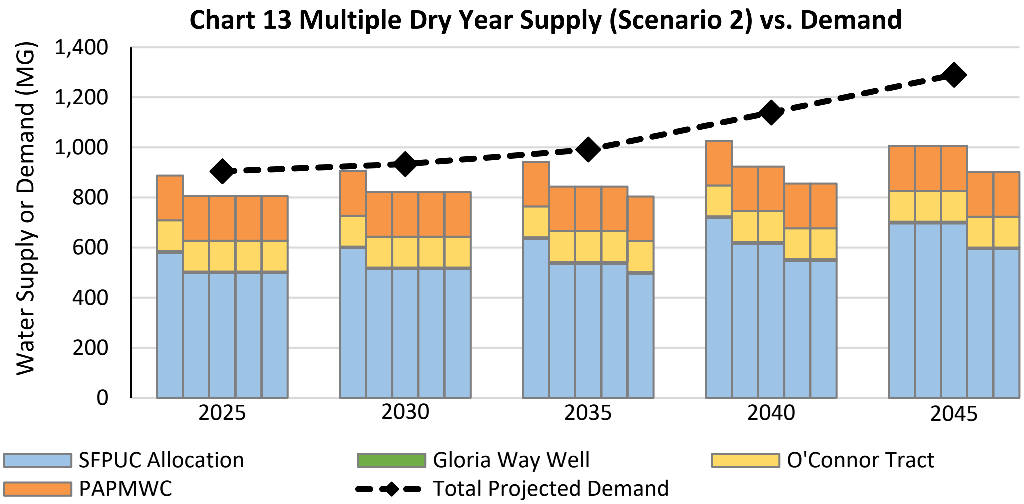
4.3.2.2 *Water Service Reliability – Multiple Dry Years (Scenario 2)*

Table 13 and the associated chart below mirrors Table 7-5 in the UWMP and shows the projected supply and demand totals under multiple dry year conditions under Scenario 2[6]. Under these conditions, it is expected that water supplies from the O'Connor Tract and PAPMWC wells will be available to help offset supply shortfalls experienced by the City.

Table 13 Multiple Dry Years Supply and Demand Comparison (Scenario 2) (DWR Table 7-4)

		2025	2030	2035	2040	2045
First year	Supply totals	887	906	943	1,026	1,005
	Demand totals	905	934	991	1,140	1,290
	Difference	(17)	(28)	(48)	(113)	(285)
Second year	Supply totals	806	822	844	924	1,005
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(148)	(216)	(285)
Third year	Supply totals	806	822	844	924	1,005
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(148)	(216)	(285)
Fourth year	Supply totals	806	822	844	855	902
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(148)	(284)	(388)
Fifth year	Supply totals	806	822	804	855	902
	Demand totals	905	934	991	1,140	1,290
	Difference	(99)	(112)	(187)	(284)	(388)

NOTES:
(c) Volumes are in units of MG.
(d) Includes supply from the SFPUC RWS (Table 5), the City's Gloria Way Well, and the O'Connor Tract and PAPMWC groundwater wells (Table 11).



4.3.2.3 *Drought Risk Assessment (Scenario 2)*

Table 14 below mirrors Table 7-8 in the UWMP and provides a comparison of the water supply sources available to East Palo Alto with the total projected water use for an assumed drought period of 2021 through 2025 with inclusion of additional supplies and demands from the O'Connor Tract and PAPMWC water systems under Scenario 2. The City is expected to experience significant shortfalls on the SFPUC RWS in years 2023-2025 of the DRA with unconstrained demands because of the assumed implementation of the Bay-Delta Plan Amendment in 2023, however added dry-year supply from the O'Connor Tract and PAPMWC water systems would significantly reduce the need for demand reduction measures over the next five years.

Table 14 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 2) (DWR Table 7-5)

2021	Total
Total Water Use	827
Total Supplies	827
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

2022	Total
Total Water Use	850
Total Supplies	850
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	

2023	Total
Total Water Use	875
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(421)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	433
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	12
Resulting % Use Reduction from WSCP action	50%

Table 14 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b) (Scenario 2) (DWR Table 7-5)

2024	Total
Total Water Use	900
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(446)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	433
WSCP - use reduction savings benefit	13
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

2025	Total
Total Water Use	905
Total Supplies	453
Surplus/Shortfall w/o WSCP Action	(451)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	433
WSCP - use reduction savings benefit	18
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	50%

NOTES:
(d) Volumes are in units of MG.
(e) Assumes use of Pad D well at 500 gpm, 12 hrs/day, year round to augment supplies during the projected shortage of greater than 40%.
(f) Assumes dry-year supplies from Gloria Way, O'Connor Tract and PAPMWC wells at rates shown in Table 11.

Under Scenario 2, required demand cutbacks during single dry years would range from 2% - 22% and during multiple dry years would range from 11% - 30%. Required demand cutbacks for both scenarios are significantly less than those presented in the City's UWMP (i.e., without wells from O'Connor Tract and PAPMWC). Those required demand cutbacks ranged from 17% - 34% during single dry years, and 26% - 42% during multiple dry years.

5. DISCUSSION AND CONCLUSIONS

As discussed above, the additional demands incurred from the O'Connor Tract and PAPMWC customers can be met with the City's ISG during normal years through 2040, with only a small deficit in 2045 that could likely be offset through water conservation in those systems or increased groundwater use. Under single and multiple dry year conditions, use of both system's groundwater wells can help offset the significant cutbacks faced by the SFPUC RWS. Two scenarios were analyzed using different methods of calculating projected supply availability for both systems, as described in Section 4.

- Under Scenario 1, required demand cutbacks during single dry years would range from 11% - 28% and during multiple dry years would range from 20% - 36%.
- Under Scenario 2, required demand cutbacks during single dry years would range from 2% - 22% and during multiple dry years would range from 11% - 30%.
- Required demand cutbacks for both scenarios are significantly less than those presented in the City's UWMP (i.e., without wells from O'Connor Tract and PAPMWC). Those required demand cutbacks ranged from 17% - 34% during single dry years, and 26% - 42% during multiple dry years.

Furthermore, the five-year drought risk assessment under either scenario indicates that these supplemental supply sources could significantly reduce the need for demand reduction measures over the next five years.

5.1 Uncertainties and Limitations

The analysis presented herein is based on the best available data and has numerous uncertainties regarding supply availability and projected demands. The water supply reliability analysis assumes that SFPUC RWS allocations to the City would increase based on the increase in City demands incurred by the two new systems. As discussed above, the methodology SFPUC is assuming for drought allocations during shortages greater than 20% has not been formally agreed to by BAWSCA member agencies. Therefore, these supply projections could potentially be drastically different than assumed (See Section 7.1.3.4 of the main UWMP for more discussion on uncertainties regarding SFPUC drought allocations).

Additionally, the demand projections for both the O'Connor Tract and PAPMWC are assumed to be constant over the planning period, but it is possible that demands may increase or reduce over time given shifts in population or water use in those communities. Lastly, groundwater supplies for the O'Connor Tract and PAPMWC were not evaluated with respect to the sustainable yield of the groundwater basin and thus the amount of groundwater supply available to the City during dry year conditions under Scenario 2 could potentially be different than what is presented in this analysis[7]. Given these uncertainties, the analysis presented herein should be considered a conceptual analysis to help the City determine the potential impacts and benefits of incorporating the O'Connor Tract and PAPMWC into their distribution system.

[7] Under Scenario 1, long-term average groundwater use would be less than current conditions. Depending on the actual frequency of dry year conditions, long-term average groundwater use under Scenario 2 could also be less than current conditions.

Appendix F

SFPUC AND BAWSCA COMMON LANGUAGE FOR 2020 UWMPS

Draft Common Language for BAWSCA Member Agencies' 2020 UWMPs

Tier One Drought Allocations

In July 2009, San Francisco and its Wholesale Customers in Alameda County, Santa Clara County, and San Mateo County (Wholesale Customers) adopted the Water Supply Agreement (WSA), which includes a Water Shortage Allocation Plan (WSAP) that describes the method for allocating water from the Regional Water System (RWS) between Retail and Wholesale Customers during system-wide shortages of 20 percent or less. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated WSA.

The SFPUC allocates water under the Tier One Plan when it determines that the projected available water supply is up to 20 percent less than projected system-wide water purchases. The following table shows the SFPUC (i.e, Retail Customers) share and the Wholesale Customers' share of the annual water supply available during shortages depending on the level of system-wide reduction in water use that is required. The Wholesale Customers' share will be apportioned among the individual Wholesale Customers based on a separate methodology adopted by the Wholesale Customers, known as the Tier Two Plan, discussed further below.

Level of System-Wide Reduction in Water Use Required	Share of Available Water	
	SFPUC Share	Wholesale Customers Share
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%

The Tier One Plan allows for voluntary transfers of shortage allocations between the SFPUC and any Wholesale Customer as well as between Wholesale Customers themselves. In addition, water "banked" by a Wholesale Customer, through reductions in usage greater than required, may also be transferred.

As amended in 2018, the Tier One Plan requires Retail Customers to conserve a minimum of 5% during droughts. If Retail Customer demands are lower than the Retail Customer allocation (resulting in a "positive allocation" to Retail[1]) then the excess percentage would be re-allocated to the Wholesale Customers' share. The additional water conserved by Retail Customers up to the minimum 5% level is deemed to remain in storage for allocation in future successive dry years.

The Tier One Plan will expire at the end of the term of the WSA in 2034, unless mutually extended by San Francisco and the Wholesale Customers.

The Tier One Plan applies only when the SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code

[1] See Water Supply Agreement, Water Shortage Allocation Plan (Attachment H), Section 2.1.

Section 350. Separate from a declaration of a water shortage emergency, the SFPUC may opt to request voluntary cutbacks from its Retail and Wholesale Customers to achieve necessary water use reductions during drought periods.

Tier Two Drought Allocations

The Wholesale Customers have negotiated and adopted the Tier Two Plan, referenced above, which allocates the collective Wholesale Customer share from the Tier One Plan among each of the 26 Wholesale Customers. These Tier Two allocations are based on a formula that takes into account multiple factors for each Wholesale Customer including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in millions of gallons per day (mgd), which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the Wholesale Customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain Wholesale Customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all Wholesale Customers' Allocation Bases to determine each wholesale customer's Allocation Factor. The final shortage allocation for each Wholesale Customer is determined by multiplying the amount of water available to the Wholesale Customers' collectively under the Tier One Plan, by the Wholesale Customer's Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the Wholesale Customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each Wholesale Customer will also change. However, for long-term planning purposes, each Wholesale Customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted.

The Tier Two Plan, which initially expired in 2018, has been extended by the BAWSCA Board of Directors every year since for one additional calendar year. In November 2020, the BAWSCA Board voted to extend the Tier Two Plan through the end of 2021.

Individual Supply Guarantee

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 mgd to the 24 permanent Wholesale Customers collectively. San Jose and Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco. The Supply Assurance is allocated among the 24 permanent Wholesale Customers through Individual Supply Guarantees (ISG), which represent each Wholesale Customer's allocation of the 184 mgd Supply Assurance.

[Name of Agency's] ISG is _______ mgd.

2028 SFPUC Decisions (formerly 2018 SFPUC Decisions)
[Note: This section is intended to be optional language that individual BAWSCA member agencies may use.]

In the 2009 WSA, the SFPUC committed to make three decisions before 2018 that affect water supply development:

- Whether or not to make the cities of San Jose and Santa Clara permanent customers,
- Whether or not to supply the additional unmet supply needs of the Wholesale Customers beyond 2018, and
- Whether or not to increase the wholesale customer Supply Assurance above 184 mgd.

Events since 2009 made it difficult for the SFPUC to conduct the necessary water supply planning and CEQA analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated WSA, the decisions were deferred for 10 years to 2028.

Additionally, there have been recent changes to instream flow requirements and customer demand projections that have affected water supply planning beyond 2018. As a result, the SFPUC has established an Alternative Water Supply Planning program to evaluate several regional and local water supply options. Through this program, the SFPUC will conduct feasibility studies and develop an Alternative Water Supply Plan by July 2023 to support the continued development of water supplies to meet future needs.

Reliability of the Regional Water System

In 2008, the SFPUC adopted Level of Service (LOS) Goals and Objectives in conjunction with the adoption of WSIP. The SFPUC updated the LOS Goals and Objectives in February 2020.

The SFPUC's LOS Goals and Objectives related to water supply are:

Program Goal	System Performance Objective
Water Supply – *meet customer water needs in non-drought and drought periods*	• Meet all state and federal regulations to support the proper operation of the water system and related power facilities. • Meet average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non–drought years for system demands consistent with the 2009 Water Supply Agreement. • Meet dry-year delivery needs while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. • Diversify water supply options during non-drought and drought periods. • Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

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Factors Impacting Supply Reliability

Adoption of the 2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 30-50% of the "unimpaired flow"[2] on the three tributaries from February through June in every year type. In SFPUC modeling of the new flow standard, it is assumed that the required release is 40% of unimpaired flow.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in this UWMP in normal years but would experience supply shortages in single dry years or multiple dry years. Implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years. The SFPUC has initiated an Alternative Water Supply Planning Program to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate

[2] "Unimpaired flow represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds." (Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Dec. 12, 2018) p.17, fn. 14, available at https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.)

change. As the region faces future challenges – both known and unknown – the SFPUC is considering this suite of diverse non-traditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for multiple reasons.

First, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal courts, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including a legal challenge filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation. This litigation is in the early stages and there have been no dispositive court rulings as of this date.

Second, the Bay-Delta Plan Amendment is not self-implementing and does not automatically allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Bay-Delta Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, may be implemented through the water quality certification process set forth in section 401 of the Clean Water Act as part of the Federal Energy Regulatory Commission's licensing proceedings for the Don Pedro and La Grange hydroelectric projects. It is currently unclear when the license amendment process is expected to be completed. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Third, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, the SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support the SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration.[3]

Water Supply – All Year Types

The SFPUC historically has met demand in its service area in all year types from its watersheds, which consist of:

- Tuolumne River watershed
- Alameda Creek watershed

[3] California Natural Resources Agency, "Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds," available at https://files.resources.ca.gov/voluntary-agreements/.

- San Mateo County watersheds

In general, 85 percent of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15 percent comes from the local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos and San Andreas Reservoirs. The adopted WSIP retains this mix of water supply for all year types.

WSIP Dry Year Water Supply Projects

The WSIP authorized the SFPUC to undertake a number of water supply projects to meet dry-year demands with no greater than 20 percent system-wide rationing in any one year. Those projects include the following:

- **Calaveras Dam Replacement Project**

  Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC constructed a new dam of equal height downstream of the existing dam. Construction on the project occurred between 2011 and July 2019. The SFPUC began impounding water behind the new dam in accordance with California Division of Safety of Dams (DSOD) guidance in the winter of 2018/2019.

- **Alameda Creek Recapture Project**

  As a part of the regulatory requirements for future operations of Calaveras Reservoir, the SFPUC must implement bypass and instream flow schedules for Alameda Creek. The Alameda Creek Recapture Project will recapture a portion of the water system yield lost due to the instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)-24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. Construction of this project will occur from spring 2021 to fall 2022.

- **Lower Crystal Springs Dam Improvements**

  The Lower Crystal Springs Dam (LCSD) Improvements were substantially completed in November 2011. The joint San Mateo County/SFPUC Bridge Replacement Project to replace the bridge across the dam was completed in January 2019. A WSIP follow up project to modify the LCSD Stilling Basin for fish habitat and upgrade the fish water release and other valves started in April 2019. While the main improvements to the dam have been completed, environmental permitting issues for reservoir operation remain significant. While the reservoir elevation was lowered due to DSOD restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir elevation. Raising the reservoir elevation now requires that new plant populations be restored incrementally before the reservoir elevation is raised. The result is that it may be several years before pre-project water storage volumes can be restored.

- **Regional Groundwater Storage and Recovery Project**

  The Groundwater Storage and Recovery (GSR) Project is a strategic partnership between SFPUC and three San Mateo County agencies – the California Water Service Company (serving South San Francisco and Colma), the City of Daly City, and the City of San Bruno – to conjunctively operate the south Westside Groundwater Basin. The project sustainably manages groundwater and surface water resources in a way that provides supplies during times of drought. During years of normal or heavy rainfall, the project would provide additional surface water to the partner agencies in San Mateo County in lieu of groundwater pumping. Over time, reduced pumping creates water storage through natural recharge of up to 20 billion gallons of new water supply available during dry years.

The project's Final Environmental Impact Report was certified in August 2014, and the project also received Commission approval that month. Phase 1 of this project consists of construction of thirteen well sites and is over 99 percent complete. Phase 2 of this project consists of completing construction of the well station at the South San Francisco Main site and some carryover work that has not been completed from Phase 1. Phase 2 design work began in December 2019.

- **2 mgd Dry-year Water Transfer**

  In 2012, the dry-year transfer was proposed between the Modesto Irrigation District and the SFPUC. Negotiations were terminated because an agreement could not be reached. Subsequently, the SFPUC had discussions with the Oakdale Irrigation District for a one-year transfer agreement with the SFPUC for 2 mgd (2,240 acre-feet). No progress towards agreement on a transfer was made in 2019, but the irrigation districts recognize SFPUC's continued interest and SFPUC will continue to pursue transfers.

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts with a system demand of 265 mgd, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP.

Furthermore, the permitting obligations for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements include a combined commitment of 12.8 mgd for instream flows on average. When this is reduced for an assumed Alameda Creek Recapture Project recovery of 9.3 mgd, the net loss of water supply is 3.5 mgd.

Alternative Water Supply Planning Program

The SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience through the Alternative Water Supply Planning Program. The drivers for the program include: (1) the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, (2) the net supply shortfall following the implementation of WSIP, (3) San Francisco's perpetual obligation to supply 184 MGD to the Wholesale Customers, (4) adopted Level of Service Goals to limit rationing to no more than 20 percent system-wide during droughts, and (5) the potential need to identify water supplies that would be required to offer permanent status to interruptible customers. Developing additional supplies through this program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the Alternative Water Supply Planning Program are as follows:

1. Offset instream flow needs and meet regulatory requirements
2. Meet existing obligations to existing permanent customers
3. Make interruptible customers permanent
4. Meet increased demands of existing and interruptible customers

In conjunction with these planning priorities, the SFPUC considers how the program fits within the LOS Goals and Objectives related to water supply and sustainability when considering new water supply opportunities. The key LOS Goals and Objectives relevant to this effort can be summarized as:

- Meet dry-year delivery needs while limiting rationing to a maximum of 20 percent system-wide reduction in water service during extended droughts;
- Diversify water supply options during non-drought and drought periods;
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers;
- Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat;
- Maintain operational flexibility (although this LOS Goal was not intended explicitly for the addition of new supplies, it is applicate here).

Together, the planning priorities and LOS Goals and Objectives provide a lens through which the SFPUC considers water supply options and opportunities to meet all foreseeable water supply needs.

In addition to the Daly City Recycled Water Expansion project[4], which was a potential project identified in the 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. A more detailed list and descriptions of these efforts are provided below.

The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. Because these water supply projects would take 10 to 30 years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, the yield from these projects are not currently incorporated into SFPUC's supply projections. State and federal grants and other financing opportunities would be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

- **Daly City Recycled Water Expansion** (Regional, Normal- and Dry-Year Supply)

  This project can produce up to 3 mgd of tertiary recycled water during the irrigation season (~7 months). On an average annual basis, this is equivalent to 1.25 mgd or 1,400 acre-feet per year. The project is envisioned to provide recycled water to 13 cemeteries and other smaller irrigation customers, offsetting existing groundwater pumping from the South Westside Groundwater Basin; this will free up groundwater, enhancing the reliability of the Basin. The project is a regional partnership between the SFPUC and Daly City. The irrigation customers are located largely within California Water Service's (Cal Water's) service area. RWS customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts. In this way, this project supports the GSR Project, which is under construction.

[4] While this potential project was identified in the 2015 UWMP, it has since been approved by Daly City following environmental review and has a higher likelihood of being implemented.

- **ACWD-USD Purified Water Partnership** (Regional, Normal- and Dry-Year Supply)

  This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated wastewater. Purified water produced by advanced water treatment at USD could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin or put to other uses in Alameda County Water District's (ACWD) service area. With the additional water supply to ACWD, an in-lieu exchange with the SFPUC would result in more water left in the RWS. Additional water supply could also be directly transmitted to the SFPUC through a new intertie between ACWD and the SFPUC.

- **Crystal Springs Purified Water** (Regional, Normal- and Dry-Year Supply)

  The Crystal Springs Purified Water (PREP) Project is a purified water project that could provide 6-12 mgd of water supply through reservoir water augmentation at Crystal Springs Reservoir, which is a facility of the RWS. Treated wastewater from Silicon Valley Clean Water (SVCW) and/or the City of San Mateo would go through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. The purified water would then be transmitted 10-20 miles (depending on the alignment) to Crystal Springs Reservoir, blended with regional surface water supplies and treated again at Harry Tracy Water Treatment Plant. Project partners include the SFPUC, BAWSCA, SVCW, CalWater, Redwood City, Foster City, and the City of San Mateo. Partner agencies are contributing financial and staff resources towards the work effort.

- **Los Vaqueros Reservoir Expansion** (Regional, Dry Year Supply)

  The Los Vaqueros Reservoir Expansion (LVE) Project is a storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 acre-feet to 275,000 acre-feet. While the existing reservoir is owned and operated by the Contra Costa Water District (CCWD), the expansion will have regional benefits and will be managed by a Joint Powers Authority (JPA) that will be set up prior to construction. Meanwhile, CCWD is leading the planning, design and environmental review efforts. CCWD's Board certified the EIS/EIR and approved the LVE Project on May 13, 2020. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to the SFPUC. BAWSCA is working in concert with the SFPUC to support their work effort on the LVE project.
    - **Conveyance Alternatives:** The SFPUC is considering two main pathways to move water from storage in a prospective LVE Project to the SFPUC's service area, either directly to RWS facilities or indirectly via an exchange with partner agencies. The SFPUC is evaluating potential alignments for conveyance.
    - **Bay Area Regional Reliability Shared Water Access Program (BARR SWAP):** As part of the BARR Partnership, a consortium of 8 Bay Area water utilities (including ACWD, BAWSCA, CCWD, EBMUD, Marin Municipal Water District (MMWD), SFPUC, Valley Water, and Zone 7 Water Agency) are exploring opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies. The BARR agencies are proposing two separate pilot projects in 2020-2021 through the Shared Water Access Program (SWAP) to test conveyance pathways and identify potential hurdles to better prepare for sharing water during a future drought or emergency. A strategy report identifying opportunities and considerations will accompany these pilot transfers and will be completed in 2021.

- **Bay Area Brackish Water Desalination** (Regional, Normal- and Dry-Year Supply)

  The Bay Area Brackish Water Desalination (Regional Desalination) Project is a partnership between CCWD, the SFPUC, Valley Water, and Zone 7 Water Agency. East Bay Municipal Utilities District (EBMUD) and ACWD may also participate in the project. The project could provide a new drinking water supply to the region by treating brackish water from CCWD's existing Mallard Slough intake in Contra Costa County. While this project has independent utility as a water supply project, for the current planning effort the SFPUC is considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, the SFPUC is considering a water supply benefit of between 5 and 15 mgd during drought conditions when combined with storage at LVE.

- **Calaveras Reservoir Expansion** (Regional, Dry Year Supply)

  Calaveras Reservoir would be expanded to create 289,000 AF additional capacity to store excess Regional Water System supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.

- **Groundwater Banking**

  Groundwater banking in the Modesto Irrigation District (MID) and Turlock Irrigation District (TID) service areas could be used to provide some additional water supply to meet instream releases in dry years reducing water supply impacts to the SFPUC service area. For example, additional surface water could be provided to irrigators in wet years, which would offset the use of groundwater, thereby allowing the groundwater to remain in the basin rather than be consumptively used. The groundwater that remains in the basin can then be used in a subsequent dry year for irrigation, freeing up surface water that would have otherwise been delivered to irrigators to meet instream flow requirements.

  A feasibility study of this option is included in the proposed Tuolumne River Voluntary Agreement. Progress on this potential water supply option will depend on the negotiations of the Voluntary Agreement.

- **Inter-Basin Collaborations**

  Inter-Basin Collaborations could provide net water supply benefits in dry years by sharing responsibility for in-stream flows in the San Joaquin River and Delta more broadly among several tributary reservoir systems. One mechanism by which this could be accomplished would be to establish a partnership between interests on the Tuolumne River and those on the Stanislaus River, which would allow responsibility for streamflow to be assigned variably based on the annual hydrology.

  As is the case with Groundwater Banking, feasibility of this option is included in the proposed Tuolumne River Voluntary Agreement.

If all the projects identified through the current planning process can be implemented, there would still be a supply shortfall to meet projected needs. Furthermore, each of the supply options being considered has its own inherent challenges and uncertainties that may affect the SFPUC's ability to implement it.

Given the limited availability of water supply alternatives - unless the supply risks are significantly reduced or our needs change significantly - the SFPUC will continue to plan, develop and implement all project opportunities that can help bridge the anticipated water supply gaps during droughts. In 2019, the SFPUC completed a survey among water and wastewater agencies within the service area to identify additional opportunities for purified water. Such opportunities remain limited, but the SFPUC continues to pursue all possibilities.

Projected SFPUC Regional Water System Supply Reliability

The SFPUC will provide tables presenting the projected RWS supply reliability under normal, single dry year, and multiple dry year scenarios.

Climate Change

The issue of climate change has become an important factor in water resources planning in the State, and is frequently considered in urban water management planning processes, though the extent and precise effects of climate change remain uncertain. There is convincing evidence that increasing concentrations of greenhouse gasses have caused and will continue to cause a rise in temperatures around the world, which will result in a wide range of changes in climate patterns. Moreover, observational data show that a warming trend occurred during the latter part of the 20th century and virtually all projections indicate this will continue through the 21st century. These changes will have a direct effect on water resources in California, and numerous studies have been conducted to determine the potential impacts to water resources. Based on these studies, climate change could result in the following types of water resource impacts, including impacts on the watersheds in the Bay Area:

- Reductions in the average annual snowpack due to a rise in the snowline and a shallower snowpack in the low and medium elevation zones, such as in the Tuolumne River basin, and a shift in snowmelt runoff to earlier in the year;
- Changes in the timing, annual average, intensity and variability of precipitation, and an increased amount of precipitation falling as rain rather than snow;
- Long-term changes in watershed vegetation and increased incidence of wildfires that could affect water quality and quantity;
- Sea level rise and an increase in saltwater intrusion;
- Increased water temperatures with accompanying potential adverse effects on some fisheries and water quality;
- Increases in evaporation and concomitant increased irrigation need; and
- Changes in urban and agricultural water demand.

Both the SFPUC and BAWSCA participated in the 2020 update of the Bay Area Integrated Regional Water Management Plan (BAIRWMP), which includes an assessment of the potential climate change vulnerabilities of the region’s water resources and identifies climate change adaptation strategies. In addition, the SFPUC continues to study the effect of climate change on the Regional Water System (RWS). These works are summarized below.

Bay Area Integrated Regional Water Management Plan

Climate change adaptation continues to be an overarching theme for the 2019 BAIRWMP update. As stated in the BAIRWMP, identification of watershed characteristics that could potentially be vulnerable to future climate change is the first step in assessing vulnerabilities of water resources in the Bay Area Region (Region). Vulnerability is defined as the degree to which a system is exposed to, susceptible to, and able to cope with or adjust to, the adverse effects of climate change. A vulnerability assessment was conducted in accordance with the Department of Water Resources' (DWR's) *Climate Change Handbook for Regional Water Planning* and using the most current science available for the Region. The vulnerability assessment, summarized in the table below, provides the main water planning categories applicable to the Region and a general overview of the qualitative assessment of each category with respect to anticipated climate change impacts.

Summary of BAIRWMP Climate Change Vulnerability Assessment

Vulnerability Areas	General Overview of Vulnerabilities
Water Demand	**Urban and Agricultural Water Demand** – Changes to hydrology in the Region as a result of climate change could lead to changes in total water demand and use patterns. Increased irrigation (outdoor landscape or agricultural) is anticipated to occur with temperature rise, increased evaporative losses due to warmer temperature, and a longer growing season. Water treatment and distribution systems are most vulnerable to increases in maximum day demand.
Water Supply	**Imported Water** – Imported water derived from the Sierra Nevada sources and Delta diversions provide 66 percent of the water resources available to the Region. Potential impacts on the availability of these sources resulting from climate change directly affect the amount of imported water supply delivered to the Region. **Regional Surface Water** – Although future projections suggest that small changes in total annual precipitation over the Region will not change much, there may be changes to when precipitation occurs with reductions in the spring and more intense rainfall in the winter. **Regional Groundwater** – Changes in local hydrology could affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long-term in some areas. Decreased inflow from more flashy or more intense runoff, increased evaporative losses and warmer and shorter winter seasons can alter natural recharge of groundwater. Salinity intrusion into coastal groundwater aquifers due to sea-level rise could interfere with local groundwater uses. Furthermore, additional reductions in imported water supplies would lead to less imported water available for managed recharge of local groundwater basins and potentially more groundwater pumping in lieu of imported water availability.
Water Quality	**Imported Water** – For sources derived from the Delta, sea-level rise could result in increases in chloride and bromide (a disinfection by-product (DBP) precursor that is also a component of sea water),

Vulnerability Areas	General Overview of Vulnerabilities
	potentially requiring changes in treatment for drinking water. Increased temperature could result in an increase in algal blooms, taste and odor events, and a general increase in DBP formation **Regional Surface Water** – Increased temperature could result in lower dissolved oxygen in streams and prolong thermocline stratification in lakes and reservoirs forming anoxic bottom conditions and algal blooms. Decrease in annual precipitation could result in higher concentrations of contaminants in streams during droughts or in association with flushing rain events. Increased wildfire risk and flashier or more intense storms could increase turbidity loads for water treatment. **Regional Groundwater** – Sea-level rise could result in increases in chlorides and bromide for some coastal groundwater basins in the Region. Water quality changes in imported water used for recharge could also impact groundwater quality.
Sea-Level Rise	Sea-level rise is additive to tidal range, storm surges, stream flows, and wind waves, which together will increase the potential for higher total water levels, overtopping, and erosion. Much of the bay shoreline is comprised of low-lying diked baylands which are already vulnerable to flooding. In addition to rising mean sea level, continued subsidence due to tectonic activity will increase the rate of relative sea-level rise. As sea-level rise increases, both the frequency and consequences of coastal storm events, and the cost of damage to the built and natural environment, will increase. Existing coastal armoring (including levees, breakwaters, and other structures) is likely to be insufficient to protect against projected sea-level rise. Crest elevations of structures will have to be raised or structures relocated to reduce hazards from higher total water levels and larger waves.
Flooding	Climate change projections are not sensitive enough to assess localized flooding, but the general expectation is that more intense storms would occur thereby leading to more frequent, longer and deeper flooding. Changes to precipitation regimes may increase flooding. Elevated Bay elevations due to sea-level rise will increase backwater effects exacerbating the effect of fluvial floods and storm drain backwater flooding.

Vulnerability Areas	General Overview of Vulnerabilities
Ecosystem and Habitat	Changes in the seasonal patterns of temperature, precipitation, and fire due to climate change can dramatically alter ecosystems that provide habitats for California's native species. These impacts can result in species loss, increased invasive species ranges, loss of ecosystem functions, and changes in vegetation growing ranges. Reduced rain and changes in the seasonal distribution of rainfall may alter timing of low flows in streams and rivers, which in turn would have consequences for aquatic ecosystems. Changes in rainfall patterns and air temperature may affect water temperatures, potentially affecting coldwater aquatic species. Bay Area ecosystems and habitat provide important ecosystem services, such as: carbon storage, enhanced water supply and quality, flood protection, food and fiber production. Climate change is expected to substantially change several of these services. The region provides substantial aquatic and habitat-related recreational opportunities, including: fishing, wildlife viewing, and wine industry tourism (a significant asset to the region) that may be at risk due to climate change effects.
Hydropower	Currently, several agencies in the Region produce or rely on hydropower produced outside of the Region for a portion of their power needs. As the hydropower is produced in the Sierra, there may be changes in the future in the timing and amount of energy produced due to changes in the timing and amount of runoff as a result of climate change. Some hydropower is also produced within the region and could also be affected by changes in the timing and amount of runoff.

Source: 2019 Bay Area Integrated Regional Water Management Plan (BAIRWMP), Table 16-3.

SFPUC Climate Change Studies

The SFPUC views assessment of the effects of climate change as an ongoing project requiring regular updating to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. Climate change research by the SFPUC began in 2009 and continues to be refined. In its 2012 report "Sensitivity of Upper Tuolumne River Flow to Climate Change Scenarios," the SFPUC assessed the sensitivity of runoff into Hetch Hetchy Reservoir to a range of changes in temperature and precipitation due to climate change. Key conclusions from the report include the following:

- With differing increases in temperature alone, the median annual runoff at Hetch Hetchy would decrease by 0.7-2.1% from present-day conditions by 2040 and by 2.6-10.2% from present-day by 2100. Adding differing decreases in precipitation on top of temperature increases, the median annual runoff at Hetch Hetchy would decrease by 7.6-8.6% from present-day conditions by 2040 and by 24.7-29.4% from present-day conditions by 2100.

- In critically dry years, these reductions in annual runoff at Hetch Hetchy would be significantly greater, with runoff decreasing up to 46.5% from present day conditions by 2100 utilizing the same climate change scenarios.
- In addition to the total change in runoff, there will be a shift in the annual distribution of runoff. Winter and early spring runoff would increase and late spring and summer runoff would decrease.
- Under all scenarios, snow accumulation would be reduced and snow would melt earlier in the spring, with significant reductions in maximum peak snow water equivalent under most scenarios.

Currently, the SFPUC is conducting a comprehensive assessment of the potential effects of climate change on water supply using a wide range of plausible increases in temperature and changes in precipitation to address the wide uncertainty in climate projections over the planning horizon 2020 to 2070. There are many uncertain factors such as climate change, changing regulations, water quality, growth and economic cycles that may create vulnerabilities for the Regional Water System's ability to meet levels of service. The uncertainties associated with the degree to which these factors will occur and how much risk they present to the water system is difficult to predict, but nonetheless they need to be considered in SFPUC planning. To address this planning challenge, the project uses a vulnerability-based planning approach to explore a range of future conditions to identify vulnerabilities, assess the risks associated with these vulnerabilities that could lead to developing an adaptation plan that is flexible and robust to a wide range of future outcomes.

Common Language for BAWSCA Member Agencies'

2020 UWMP Updates

BAWSCA

Description of BAWSCA

BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies that purchase wholesale water supplies from the San Francisco Public Utilities Commission (SFPUC). Collectively, the BAWSCA member agencies deliver water to over 1.8 million residents and nearly 40,000 commercial, industrial and institutional accounts in Alameda, San Mateo and Santa Clara Counties.

BAWSCA also represents the collective interests of these wholesale water customers on all significant technical, financial, and policy matters related to the operation and improvement of the SFPUC's Regional Water System (RWS).

BAWSCA's role in the development of the 2020 Urban Water Management Plan (UWMP) updates is to work with its member agencies and the SFPUC to seek consistency among UWMP documents.

Regional Water Demand and Conservation Projections

In June 2020, BAWSCA completed the Regional Water Demand and Conservation Projections Report (Demand Study).[1] The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each Wholesale Customer using a common methodology to support both regional and individual agency planning efforts and compliance with the new statewide water efficiency targets required by Assembly Bill (AB) 1668 and Senate Bill (SB) 606.

Through the Demand Study process, BAWSCA and the Wholesale Customers (1) quantified the total average-year water demand for each BAWSCA member agency through 2045, (2) quantified passive and active conservation water savings potential for each individual Wholesale Customer through 2045, and (3) identified 24 conservation programs with high water savings potential and/or member agency interest. Implementation of these conservation measures, along with passive conservation, is anticipated to yield an additional 37.3 MGD of water savings by 2045. Based on the revised water demand projections, the identified water conservation savings, increased development and use of other local supplies by the Wholesale Customers, and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2045.

As part of the Demand Study, each Wholesale Customer was provided with a demand model that can be used to support ongoing demand and conservation planning efforts, including UWMP preparation.

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[1] Phase III Final Report: http://bawsca.org/uploads/pdf/BAWSCA_Regional_Water_Demand_and_Conservation%20Projections%20Report_Final.pdf

Long-Term Reliable Water Supply Strategy

BAWSCA's Long-Term Reliable Water Supply Strategy (Strategy), completed in February 2015, quantified the water supply reliability needs of the BAWSCA member agencies through 2040, identified the water supply management projects and/or programs (projects) that could be developed to meet those needs, and prepared an implementation plan for the Strategy's recommendations.

When the 2015 Demand Study concluded it was determined that while there is no longer a regional normal year supply shortfall, there was a regional drought year supply shortfall of up to 43 MGD. In addition, key findings from the Strategy's project evaluation analysis included:

- Water transfers represent a high priority element of the Strategy.
- Desalination potentially provides substantial yield, but its high effective costs and intensive permitting requirements make it a less attractive drought year supply alternative.
- Other potential regional projects provide tangible, though limited, benefit in reducing dry-year shortfalls given the small average yields in drought years.

Since 2015, BAWSCA has completed a comprehensive update of demand projections and engaged in significant efforts to improve regional reliability and reduce the dry-year water supply shortfall.

Water Transfers. BAWSCA successfully facilitated two transfers of portions of Individual Supply Guarantee (ISG) between BAWSCA agencies in 2017 and 2018. Such transfers benefit all BAWSCA agencies by maximizing use of existing supplies. BAWSCA is currently working on an amendment to the Water Supply Agreement between the SFPUC and BAWSCA agencies to establish a mechanism by which member agencies that have an ISG may participate in expedited transfers of a portion of ISG and a portion of a Minimum Annual Purchase Requirement. In 2019, BAWSCA participated in a pilot water transfer that, while ultimately unsuccessful, surfaced important lessons learned and produced interagency agreements that will serve as a foundation for future transfers. BAWSCA is currently engaged in the Bay Area Regional Reliability Partnership[2] (BARR), a partnership among eight Bay Area water utilities (including the SFPUC, Alameda County Water District, BAWSCA, Contra Costa Water District, Santa Clara Valley Water District) to identify opportunities to move water across the region as efficiently as possible, particularly during times of drought and emergencies.

Regional Projects. Since 2015, BAWSCA has coordinated with local and State agencies on regional projects with potential dry-year water supply benefits for BAWSCA's agencies. These efforts include storage projects, indirect/direct water reuse projects, and studies to evaluate the capacity and potential for various conveyance systems to bring new supplies to the region.

BAWSCA continues to implement the Strategy recommendations in coordination with BAWSCA member agencies. Strategy implementation will be adaptively managed to account for changing conditions and to ensure that the goals of the Strategy are met in an efficient and cost-effective manner. On an annual basis, BAWSCA will reevaluate Strategy recommendations and results in conjunction with development of the BAWSCA's FY 2021-22 Work Plan. In this way, actions can be modified to accommodate changing conditions and new developments.

[2] https://www.bayareareliability.com/

Making Conservation a Way of Life Strategic Plan

Following the 2014-2016 drought, the State of California (State) developed the “Making Water Conservation a California Way of Life” framework to address the long-term water use efficiency requirements called for in executive orders issued by Governor Brown. In May of 2018, AB 1668 and SB 606 (collectively referred to as the efficiency legislation) went into effect, which built upon the executive orders implementing new urban water use objectives for urban retail water suppliers.

BAWSCA led its member agencies in a multi-year effort to develop and implement a strategy to meet these new legislative requirements. BAWSCA’s Making Conservation a Way of Life Strategic Plan (Strategic Plan) provided a detailed roadmap for member agencies to improve water efficiency. BAWSCA implementing the following elements of the Strategic Plan:

- Conducted an assessment of the agencies’ current practices and water industry best practices for three components of the efficiency legislation that, based on a preliminary review, present the greatest level of uncertainty and potential risk to the BAWSCA agencies. The three components were:
    1. Development of outdoor water use budgets in a manner that incorporates landscape area, local climate, and new satellite imagery data.
    2. Commercial, Industrial, and Institutional water use performance measures.
    3. Water loss requirements.
- Organized an Advanced Metering Infrastructure symposium to enable information exchange, including case studies, implementation strategies, and data analysis techniques.
- Initiated a regional CII audit pilot program, which BAWSCA aims to complete in 2021.[3]
- Implemented a regional program for water loss control to help BAWSCA agencies comply with regulatory requirements and implement cost-effective water loss interventions.
- Engaged with the SFPUC to audit meter testing and calibration practices for SFPUC’s meters at BAWSCA agency turnouts.

Finally, BAWSCA's Demand Study developed water demand and conservation projections through 2045 for each BAWSCA agency. These projects are designed to provide valuable insights on long-term water demand patterns and conservation savings potential to support regional efforts, such as implementation of BAWSCA’s Long-Term Reliable Water Supply Strategy.

[3] Efforts on the CII audit pilot program stalled in March 2020 due to the COVID 19 pandemic and related shelter-in-place orders.

Tier Two Drought Allocations

The Wholesale Customers have negotiated and adopted the Tier Two Plan, referenced above, which allocates the collective Wholesale Customer share from the Tier One Plan among each of the 26 Wholesale Customers. These Tier Two allocations are based on a formula that takes into account multiple factors for each Wholesale Customer including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in millions of gallons per day (mgd), which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the Wholesale Customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain Wholesale Customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all Wholesale Customers' Allocation Bases to determine each Wholesale Customer's Allocation Factor. The final shortage allocation for each Wholesale Customer is determined by multiplying the amount of water available to the Wholesale Customers' collectively under the Tier One Plan, by the Wholesale Customer's Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the Wholesale Customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each Wholesale Customer will also change. However, for long-term planning purposes, each Wholesale Customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted.

Per WSA Section 3.11, the Tier One and Tier Two Plans will be used to allocate water from the Regional Water System between Retail and Wholesale Customers during system-wide shortages of 20% or less. For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis. For purposes of the 2020 UWMPs, for San Francisco Regional Water System (RWS) shortages in excess of 20%, the allocations among the Wholesale Customers is assumed to be equivalent among them and to equal the drought cutback to Wholesale Customer by the SFPUC.

The Tier Two Plan, which initially expired in 2018, has been extended by the BAWSCA Board of Directors every year since for one additional calendar year. In November 2020, the BAWSCA Board voted to extend the Tier Two Plan through the end of 2021.

SFPUC's Efforts to Develop of Alternative Water Supplies

With the adoption of the Bay-Delta Plan Phase 1 (Bay-Delta Plan) by the State Water Resources Control Board in December of 2018, coupled with the uncertainties associated with litigation and the development of Voluntary Agreements that, if successful, would provide an alternative to the 40% unimpaired flow requirement that is required by the Bay-Delta Plan, BAWSCA redoubled its efforts to ensure that the SFPUC took necessary action to develop alternative water supplies such that they would be in place to fill any potential gap in supply by implementation of the Bay-Delta Plan and that the SFPUC would be able to meet its legal and contractual obligations to its Wholesale Customers.

In 2019, BAWSCA held numerous meetings with the SFPUC encouraging them to develop a division within their organization whose chief mission was to spearhead alternative water supply development. On June 25, 2019, BAWSCA provided a written and oral statement to the Commissioners urging the SFPUC to focus on developing new sources of supply in a manner similar to how it addressed the implementation of the Water System Improvement Program (WSIP). BAWSCA urged that a new water supply program was called for, with clear objectives, persistent focus, a dedicated team, adequate funding, and a plan for successful execution. The SFPUC Commission supported BAWSCA's recommendation and directed staff to undertake such an approach.

In early 2020, the SFPUC began implementation of the Alternative Water Supply Planning Program (AWSP), a program designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS.

Included in the AWSP is a suite of diverse, non-traditional supply projects that, to a great degree, leverage regional partnerships and are designed to meet the water supply needs of the SFPUC Retail and Wholesale Customers through 2045. As of the most recent Alternative Water Supply Planning Quarterly Update, SFPUC has budgeted $264 million over the next ten years to fund water supply projects. BAWSCA is heavily engaged with the SFPUC on its AWSS efforts.

BAWSCA Conservation Programs

BAWSCA manages a Regional Water Conservation Program comprised of several programs and initiatives that support and augment member agencies' and customers' efforts to use water more efficiently. These efforts extend limited water supplies that are available to meet both current and future water needs; increase drought reliability of the existing water system; and save money for both the member agencies and their customers.

The implementation of the Regional Water Conservation Program builds upon both the Water Conservation Implementation Plan (WCIP, completed in September 2009) and the Regional Demand and Conservation Projections Project (Demand Study, completed in June of 2020). These efforts include both Core Programs (implemented regionally throughout the BAWSCA service area) and Subscription Programs (funded by individual member agencies that elect to participate and implement them within their respective service areas).

BAWSCA's Core Conservation Programs include organizing classes open to the public on topics such as water efficient landscape education and water-wise gardening, assistance related to automated metering infrastructure, and other associated programs that work to promote smart water use and practices. BAWSCA's Subscription Programs include numerous rebate programs, educational programs that can be offered to area schools, technical assistance to member agencies in evaluating water loss, and programs to train and certify contractors employed to install water efficient landscape. In total, BAWSCA offers 22 programs to its member agencies and that number continues to grow over time.

Each fiscal year, BAWSCA prepares an Annual Water Conservation Report that documents how all of BAWSCA's 26 member agencies have benefitted from the Core Conservation Programs. Additionally, the report highlights how all 26 member agencies participate in one or more of the Subscription Programs offered by BAWSCA, such as rebates, water loss management and large landscape audits. The Demand Study indicates that through a combination of active and passive conservation, 37.3 MGD will be conserved by BAWSCA's member agencies by 2045.

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7. Additional language requested by the Member Agencies

SFPUC's Decision to use With Bay-Delta Plan Scenario in UWMP Submittal Tables

The adoption of the Bay-Delta Plan Amendment may significantly impact the supply available from the RWS. SFPUC recognizes that the Bay-Delta Plan Amendment has been adopted and that, given that it is now state law, we must plan for a future in which it is fully implemented. SFPUC also acknowledges that the plan is not self-implementing and therefore does not automatically go into effect. SFPUC is currently pursuing a voluntary agreement as well as a lawsuit which would limit implementation of the Plan. With both of these processes occurring on an unknown timeline, SFPUC does not know at this time when the Bay-Delta Plan Amendment is likely to go into effect. As a result, it makes sense to conduct future supply modeling for a scenario that doesn't include implementation of the Bay-Delta Plan Amendment, as that represents a potential supply reliability scenario.

Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, the SFPUC conducted water service reliability assessment that includes: (1) a scenario in which the Bay-Delta Plan Amendment is fully implemented in 2023, and (2) a scenario that considers the SFPUC system's current situation without the Bay-Delta Plan Amendment. The two scenarios provide a bookend for the possible future scenarios regarding RWS supplies. The standardized tables associated with the SFPUC's UWMP contain the future scenario that assumes implementation of the Bay-Delta Plan Amendment starting in 2023.

Bay-Delta Plan Implementation Starting Year

Because of the uncertainty surrounding implementation of the Bay-Delta Plan Amendment, the water service reliability assessment presented in the SFPUC's draft UWMP looks at two future supply scenarios, both with and without implementation of the Bay-Delta Plan Amendment. Although the SWRCB has stated it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, given the current level of uncertainty, it is assumed for the purposes of the SFPUC's draft UWMP that the Bay-Delta Plan Amendment will be fully implemented starting in 2023.

SFPUC's Decision to Present Both Modeling Results in its UWMP

A key input for the HHLSM model is the anticipated level of demand on the RWS. Supply modeling results presented in the text of the SFPUC's UWMP reflect an input of projected demands on the RWS consisting of (1) projected retail demands on the RWS (total retail demands minus local groundwater and recycled water supplies), and (2) projected Wholesale Customer purchases. The SFPUC has a Level of Service objective of meeting average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non-drought years, as well as a contractual obligation to supply 184 mgd to the Wholesale Customers. Therefore, the SFPUC has also conducted modeling based on a demand of 265 mgd in order to facilitate planning that supports meeting this Level of Service goal and their contractual obligations.

Appendix G

SFPUC Regional Water System Supply Reliability and BAWSCA Tier 2 Drought Implementation Scenarios

February 18, 2021

TO: BAWSCA Member Agencies

FROM: Danielle McPherson, Senior Water Resources Specialist
Tom Francis, Water Resources Manager

SUBJECT: San Francisco Regional Water System Supply Reliability for 2020 Urban Water Management Plans

The purpose of this memorandum is to provide updated drought allocations among the Member Agencies under the various scenarios provided in the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) Supply Reliability Letter dated January 22, 2021 and transmitted to the Member Agencies via email on January 25th ("Supply Reliability Letter", Attachment A). As presented and discussed at the February 12th BAWSCA Urban Water Management Plan (UWMP) Workshop, the Tier 2 Drought Allocation Plan was not designed for RWS shortages greater than 20 percent. As a result, the Tier 2 allocation tables shared with the Supply Reliability Letter showed unexpected and wide-ranging results between Member Agencies that should not be used for UWMP purposes.

As provided for in the 2018 Amended and Restated Water Supply Agreement (WSA), the SFPUC will honor new Tier 2 allocations agreed upon by all Member Agencies if an RWS shortage greater than 20 percent is declared. However, at this time, there is no method for allocating supplies under such significant cutbacks. Additionally, the time it would take to negotiate a modified Tier 2 plan to address those significant cutbacks would be extensive and greater than the timeline required for BAWSCA to provide your agency with numbers for input into your 2020 UWMP submittals.

For these reasons, BAWSCA is recommending that for the purpose of the 2020 UWMP updates, allocation of wholesale RWS supplies should be as follows:

1. When the average Wholesale Customers' RWS shortages are 10 percent or less, an equal percent reduction will be applied across all agencies. This is consistent with the existing Tier 2 requirement of a minimum 10 percent cutback in any Tier 2 application scenario.
2. When average Wholesale Customers' shortages are between 10 and 20 percent, the Tier 2 Drought Allocation Plan will be applied.
3. When the average Wholesale Customers' RWS shortages are greater than 20 percent, an equal percent reduction will be applied across all agencies.

Attachment B "Updated 2020 UWMP Drought Cutbacks" provides further detail, including recommended wholesale RWS allocation tables, for use in your agency's 2020 UWMP.

BAWSCA recognizes that this is not an ideal situation or method for allocation of available drought supplies. In the event of actual RWS shortages greater than 20 percent, the Member Agencies would have the opportunity to negotiate and agree upon a more nuanced and equitable approach. Such an approach would likely consider basic health and safety needs, the water needs to support critical institutions such as hospitals, and minimizing economic impacts on individual communities and the region.

Enclosed: Attachment A: Supply Reliability Letter
Attachment B: Updated 2020 UWMP Drought Cutbacks

cc: Nicole Sandkulla
Allison Schutte

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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January 22, 2021

Danielle McPherson
Senior Water Resources Specialist
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Dear Ms. McPherson,

Attached please find the information you requested on the Regional Water System's supply reliability for use in the Wholesale Customer's 2020 Urban Water Management Plan (UWMP) updates. The SFPUC has assessed the water supply reliability under the following planning scenarios:

- Projected supply reliability for year 2020 through 2045
- Projected single dry year and multiple dry year reliability for base year 2020, both with and without implementation of the Bay-Delta Plan Amendment
- Projected single dry year and multiple dry year reliability for base year 2025, both with and without implementation of the Bay-Delta Plan Amendment

The tables presented below assume full implementation of the Bay-Delta Plan Amendment will begin in 2023. All tables assume that the wholesale customers will purchase 184 mgd from the RWS through 2045. Assumptions about the status of the dry-year water supply projects included in the Water Supply Improvement Program (WSIP) are provided below in the table 'WSIP Project Assumptions'. The tables reflect instream flow requirements at San Mateo and Alameda Creeks, as described in the common language provided to BAWSCA separately.

Concerning allocation of supply during dry years, the Water Shortage Allocation Plan (WSAP) was utilized to allocate shortages between the SFPUC and the Wholesale Customers collectively. The WSAP implements a method for allocating water between the SFPUC retail customers and wholesale customers collectively which has been adopted by the Wholesale Customers per the July 2009 Water Supply Agreement between the City and County of

London N. Breed
Mayor

Sophie Maxwell
President

Anson Moran
Vice President

Tim Paulson
Commissioner

Ed Harrington
Commissioner

Michael Carlin
Acting
General Manager

San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated Water Supply Agreement. The wholesale customers have adopted the Tier Two Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers.

Compared to the reliability projections that were provided previously for the 2015 UWMP update, the biggest difference in projected future deliveries is caused by the implementation of the Bay-Delta Plan Amendment. Given the uncertainty about the implementation of the Amendment (described further in the common language provided to BAWSCA), tables are included to show future projected supplies both with and without the Bay-Delta Plan Amendment.

It is our understanding that you will pass this information on to the Wholesale Customers. If you have any questions or need additional information, please do not hesitate to contact Sarah Triolo, at striolo@sfwater.org or (628) 230 0802.

Sincerely,

Paula Kehoe

Paula Kehoe
Director of Water Resources

Table 1: WSIP Project Assumptions

	2020	**2025 and Beyond**
Calaveras Dam Replacement Project	Calaveras Reservoir partially refilled at spring 2020 level of 63,900 AF	Calaveras Reservoir fully refilled
Lower Crystal Springs Dam Improvements	Crystal Springs storage not restored	
Regional Groundwater Storage and Recovery (GSR) Project	GSR account partially filled at spring 2020 level of 23,500 AF; GSR recovery rate of 6.2 mgd	GSR account fully filled; GSR recovery rate of 6.2 mgd
Alameda Creek Recapture Project	Project not built	Project built
Dry-year Transfers	Not in effect	

Table 2: Projected Wholesale Supply from Regional Water System [For Table 6-9]:

Year	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
RWS Supply (mgd)	265	265	265	265	265	265
Wholesale Supply (mgd)	184	184	184	184	184	184

Table 3: Basis of Water Supply Data [For Table 7-1], 2020 Infrastructure Conditions With Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	265	100%	184	
Single dry year		238.5	90%	157.5	• At 10% shortage, wholesale allocation is 64%, or 152.6 mgd • Retail allocation is 36%, or 85.9 mgd • Retail allocations above 81 mgd are re-allocated to Wholesale Customers, per the 2018 WSA • 4.9 mgd added to wholesale allocation, bringing it to 157.5 mgd
Consecutive 1st Dry year		238.5	90%	157.5	• Same as above
Consecutive 2nd Dry year		212	80%	132.5	• At a 20% shortage, wholesale allocation is 62.5%, or 132.5 mgd • Retail allocation is 37.5%, or 79.5 mgd
Consecutive 3rd Dry year[1]		119.25	45%	74.5	• WSA does not define percentage split above a 20% shortage level • Assume same split as for a 20% shortage level, i.e. Wholesale Customers receive 62.5%
Consecutive 4th Dry year		119.25	45%	74.5	• Same as above
Consecutive 5th Dry year		119.25	45%	74.5	• Same as above

[1] Assuming this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Table 4: Basis of Water Supply Data [For Table 7-1], 2020 Infrastructure Conditions Without Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	265	100%	184	
Single dry year		238.5	90%	157.5	• At 10% shortage, wholesale allocation is 64%, or 152.6 mgd • Retail allocation is 36%, or 85.9 mgd • Retail allocations above 81 mgd are re-allocated to Wholesale Customers, per the 2018 WSA • 4.9 mgd added to wholesale allocation, bringing it to 157.5 mgd
Consecutive 1st Dry year		238.5	90%	157.5	• Same as above
Consecutive 2nd Dry year		212	80%	132.5	• At a 20% shortage, wholesale allocation is 62.5%, or 132.5 mgd • Retail allocation is 37.5%, or 79.5 mgd
Consecutive 3rd Dry year		212	80%	132.5	• Same as above
Consecutive 4th Dry year		212	80%	132.5	• Same as above
Consecutive 5th Dry year		212	80%	132.5	• Same as above

Table 5: Basis of Water Supply Data [For Table 7-1], 2025 Infrastructure With Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	265	100%	184	
Single dry year		132.5	50%	82.8	• WSA does not define percentage split above a 20% shortage level • Assume same split as for a 20% shortage level, i.e. Wholesale Customers receive 62.5%
Consecutive 1st Dry year		132.5	50%	82.8	• Same as above
Consecutive 2nd Dry year		119.25	45%	74.5	• Same as above
Consecutive 3rd Dry year		119.25	45%	74.5	• Same as above
Consecutive 4th Dry year		119.25	45%	74.5	• Same as above
Consecutive 5th Dry year		119.25	45%	74.5	• Same as above

Table 6: Basis of Water Supply Data [For Table 7-1], 2025 Infrastructure Without Bay Delta Plan

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	265	100%	184	
Single dry year		238.5	90%	157.5	• At 10% shortage, wholesale allocation is 64% • Retail allocation is 36%, or 85.9 mgd; retail allocations above 81 mgd are re-allocated to Wholesaler Customers, per the 2018 WSA • 4.9 mgd added to wholesale allocation, bringing it to 157.5 mgd
Consecutive 1st Dry year		238.5	90%	157.5	• Same as above
Consecutive 2nd Dry year		238.5	90%	157.5	• Same as above
Consecutive 3rd Dry year		238.5	90%	157.5	• Same as above
Consecutive 4th Dry year		212	80%	132.5	• At a 20% shortage, wholesale allocation is 62.5%, or 132.5 mgd • Retail allocation is 37.5%, or 79.5 mgd
Consecutive 5th Dry year		212	80%	132.5	• Same as above

Table 7: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], With Bay Delta Plan

	2025	2030	2035	2040	2045
First year	82.8	82.8	82.8	82.8	82.8
Second year	74.5	74.5	74.5	74.5	74.5
Third year	74.5	74.5	74.5	74.5	74.5
Fourth year	74.5	74.5	74.5	74.5	74.5
Fifth year	74.5	74.5	74.5	74.5	74.5

Table 8: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], Without Bay Delta Plan

	2025	2030	2035	2040	2045
First year	157.5	157.5	157.5	157.5	157.5
Second year	157.5	157.5	157.5	157.5	157.5
Third year	157.5	157.5	157.5	157.5	157.5
Fourth year	132.5	132.5	132.5	132.5	132.5
Fifth year	132.5	132.5	132.5	132.5	132.5

Table 9: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], With Bay Delta Plan. This table assumes Bay Delta Plan comes into effect in 2023.

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	238.5	212	119.25	119.25	119.25
Wholesale Supply (mgd)	157.5	132.5	74.5	74.5	74.5

Table 10: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], Without Bay Delta Plan

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	238.5	212	212	212	212
Wholesale Supply (mgd)	157.5	132.5	132.5	132.5	132.5

Attachment B: Updated 2020 UWMP Drought Cutbacks

The January 22, 2021, SFPUC Regional Water System (RWS) Supply Reliability Letter (Supply Reliability Letter) provides RWS supplies available to the Wholesale Customers under two scenarios: (1) With Bay-Delta Plan, and (2) Without Bay-Delta Plan. Your agency must choose which scenario to use for your agency's 2020 UWMP submittal tables. However, you may discuss both scenarios in the body of your agency's UWMP. The purpose of this attachment is to provide further detail about your agency's allocation of total RWS supplies available to the Wholesale Customers under both scenarios.

Data Sources for Projected RWS Purchases

Supply allocations are based on projected RWS purchases provided to BAWSCA by the Member Agencies. Following the completion of the Demand Study in June 2020, BAWSCA used the results to develop a table for each Member Agency listing possible supplies and total demand for 2025, 2030, 2035, 2040, and 2045. BAWSCA populated the tables with total demand after passive conservation and entered active conservation, as calculated in the agencies' DSS Model, as a source of supply. Multi-source agencies were asked to complete the table with supply projections, including from the RWS, to meet total demand. Single-source agencies were offered the opportunity to review the tables upon request. Because active conservation was treated as a source of supply, projected RWS purchases are after passive and active conservation.[1]

Water Management Representatives (WMRs) received a draft copy of all projected wholesale RWS purchase requests as part of the January 7, 2021 WMR meeting agenda packet and meeting slides. Agencies were asked to notify BAWSCA if changes were necessary regarding their purchase requests prior to BAWSCA sending those purchase requests to the SFPUC. Purchase requests were transmitted to the SFPUC via a letter dated January 15, 2021 for use in their 2020 UWMP efforts.

Note that the projected RWS purchases used by BAWSCA for fiscal years 2020-21 and for 2021-22 were provided to Christina Tang, BAWSCA's Finance Manager, by each Member Agency in January 2021. This annual reporting is part of the SFPUC's wholesale rate setting process. Member Agencies have provided BAWSCA with these projected purchases annually for the past 10 years.

UWMP Tables 7-1 and 7-5

UWMP Table 7-1 requests supply reliability for a normal year, a single dry year, and multiple (five) dry years. Tables 3, 4, 5, and 6 provided in the Supply Reliability Letter will help your agency complete UWMP Table 7-1. The Drought Risk Assessment (DRA) in UWMP Table 7-5 also requests a five-year drought sequence but specifies years 2021 through 2025. Supply Reliability Letter Tables 9 and 10 will help your agency complete UWMP Table 7-5.

The Supply Reliability Letter provides four scenarios to select from for completing UWMP Table 7-1. The Supply Reliability Letter Tables 3 (with Bay-Delta Plan) and 4 (without Bay-Delta Plan) use 2020 as the base year. Depending on which scenario you choose, these will be the basis for your agency's five-year DRA (UWMP Table 7-5). The Supply Reliability Letter Tables 5 (with Bay-Delta Plan) and 6 (without Bay-Delta Plan) use 2025 as the base year. Depending on which scenario you choose, these will be the basis for UWMP Tables 7-2 through 7-4.

[1] Projected RWS purchases are after conservation, except for Mountain View.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Total RWS supplies available to the Wholesale Customers in the first through fifth consecutive dry years in Supply Reliability Letter Table 3 align with those in Table 9 of the same letter. Similarly, Supply Reliability Letter Table 4 aligns with Table 10 of the same letter.

Table A below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Tables 7-1and 7-5.

Table A: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2020)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(1)	Projected SF RWS Wholesale Purchases	132.2 MGD	138.6 MGD	140.8 MGD	142.5 MGD	144.3 MGD	146.0 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases					
		2020	**2021**	**2022**	**2023**	**2024**	**2025**
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	0.0%	-4.4%	-5.9%	-7.0%	-8.2%	-9.3%
(5)	82.8 MGD	-37.4%	-40.3%	-41.2%	-41.9%	-42.6%	-43.3%
(6)	74.5 MGD	-43.7%	-46.3%	-47.1%	-47.7%	-48.4%	-49.0%

Table A, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative actual wholesale RWS purchases for 2020 and projected purchases for 2021 through 2025. Projected RWS purchases for years 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January. Projected RWS purchases for 2025 were provided to BAWSCA by the Member Agencies as described previously in this memo. Projected wholesale RWS purchases for 2023 and 2024 were derived assuming a linear change between 2022 and 2025.

Table B below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-1.

Table B: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2025)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	146.4 MGD	146.8 MGD	147.1 MGD	147.5 MGD	147.9 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases					
		2025	**2026**	**2027**	**2028**	**2029**	**2030**
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	-9.2%	-9.5%	-9.7%	-9.9%	-10.2%	-10.4%
(5)	82.8 MGD	-43.3%	-43.4%	-43.6%	-43.7%	-43.9%	-44.0%
(6)	74.5 MGD	-49.0%	-49.1%	-49.3%	-49.4%	-49.5%	-49.6%

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table B, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025 through 2030. Projected wholesale RWS purchases for years 2025 and 2030 were provided to BAWSCA by the Member Agencies as described previously in this memo. Projected wholesale RWS purchases for 2026 through 2029 were derived assuming a linear change between 2025 and 2030.

To complete UWMP Tables 7-1 and 7-5, reference tables in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year of the drought sequence using Tables A and B. For example, in Supply Reliability Letter Table 3, in the 5th consecutive year of a drought, the volume available to the Wholesale Customers is 74.5 MGD. To calculate RWS supplies available to your agency in 2025 using table A, locate the row with 74.5 MGD on the table – row 6 – and the column for 2025 – column (g). Then apply the percent cutback to your agency's RWS demand in 2025.

A list of purchase projections by agency are provided in Tables C, D, E, and F. The table also indicates the percent cutback that should be applied based on total RWS supplies available to the Wholesale Customers. Tables C and E use Scenario 1: With Bay-Delta Plan. Tables D and F use Scenario 2: Without Bay-Delta Plan. Tables C and D use 2020 as the base year and Tables E and F use 2025 as the base year.

BAWSCA understands that agencies are updating projected demands for their 2020 UWMPs and that projected RWS purchases may change from what was previously provided. Additionally, BAWSCA recognizes that not all Member Agencies will choose the same scenario for their UWMP supply reliability tables. For both reasons, projected RWS purchases in each Member Agency's 2020 UWMP may not add up to total Wholesale demands in the SFPUC's 2020 UWMP. This is consistent with direction given by the Department of Water Resources, which encourages suppliers use the UWMP tables to represent what they believe to be the most likely supply reliability scenario and to characterize the five-consecutive year drought in a manner that is best suited for understanding and managing their water service reliability and individual agency level of risk tolerance.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table C: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

	2020 (184 MGD)		**2021** (157.5 MGD)		**2022** (132.5 MGD)		**2023** (74.5 MGD)		**2024** (74.5 MGD)		**2025** (74.5 MGD)	
Agency	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	8.87	-47.7%	8.27	-48.4%	7.68	-49.0%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.73	-47.7%	0.81	-48.4%	0.89	-49.0%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.67	-47.7%	4.00	-48.4%	4.33	-49.0%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.29	-47.7%	1.34	-48.4%	1.40	-49.0%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.87	-47.7%	29.93	-48.4%	29.99	-49.0%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	3.86	-47.7%	3.72	-48.4%	3.57	-49.0%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.75	-47.7%	1.81	-48.4%	1.88	-49.0%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.36	-47.7%	4.22	-48.4%	4.07	-49.0%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	16.03	-47.7%	16.94	-48.4%	17.86	-49.0%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.12	-47.7%	3.19	-48.4%	3.26	-49.0%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	3.14	-47.7%	3.35	-48.4%	3.55	-49.0%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.82	-47.7%	2.84	-48.4%	2.86	-49.0%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.19	-47.7%	2.24	-48.4%	2.29	-49.0%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.76	-47.7%	6.17	-48.4%	6.59	-49.0%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.23	-47.7%	8.42	-48.4%	8.60	-49.0%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.56	-47.7%	2.45	-48.4%	2.34	-49.0%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.79	-47.7%	9.93	-48.4%	10.06	-49.0%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.04	-47.7%	2.06	-48.4%	2.09	-49.0%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	8.86	-47.7%	8.66	-48.4%	8.46	-49.0%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.35	-47.7%	3.29	-48.4%	3.24	-49.0%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-47.7%	4.50	-48.4%	4.50	-49.0%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.83	-47.7%	4.17	-48.4%	4.50	-49.0%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.70	-47.7%	1.85	-48.4%	2.01	-49.0%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.35	-47.7%	9.26	-48.4%	9.16	-49.0%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.83	-47.7%	0.84	-48.4%	0.86	-49.0%
Wholesale Total	**132.2**	**132.2†**	**138.6**	**138.6†**	**140.8**	**132.5†**	**142.5**	**74.5†**	**144.3**	**74.5†**	**146.0**	**74.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table D: Scenario 2: Without Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

	2020 (184 MGD)		**2021** (157.5 MGD)		**2022** (132.5 MGD)		**2023** (132.5 MGD)		**2024** (132.5 MGD)		**2025** (132.5 MGD)	
Agency	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	8.87	-7.0%	8.27	-8.2%	7.68	-9.2%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.73	-7.0%	0.81	-8.2%	0.89	-9.2%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.67	-7.0%	4.00	-8.2%	4.33	-9.2%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.29	-7.0%	1.34	-8.2%	1.40	-9.2%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.87	-7.0%	29.93	-8.2%	29.99	-9.2%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	3.86	-7.0%	3.72	-8.2%	3.57	-9.2%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.75	-7.0%	1.81	-8.2%	1.88	-9.2%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.36	-7.0%	4.22	-8.2%	4.07	-9.2%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	16.03	-7.0%	16.94	-8.2%	17.86	-9.2%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.12	-7.0%	3.19	-8.2%	3.26	-9.2%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	3.14	-7.0%	3.35	-8.2%	3.55	-9.2%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.82	-7.0%	2.84	-8.2%	2.86	-9.2%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.19	-7.0%	2.24	-8.2%	2.29	-9.2%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.76	-7.0%	6.17	-8.2%	6.59	-9.2%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.23	-7.0%	8.42	-8.2%	8.60	-9.2%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.56	-7.0%	2.45	-8.2%	2.34	-9.2%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.79	-7.0%	9.93	-8.2%	10.06	-9.2%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.04	-7.0%	2.06	-8.2%	2.09	-9.2%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	8.86	-7.0%	8.66	-8.2%	8.46	-9.2%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.35	-7.0%	3.29	-8.2%	3.24	-9.2%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-7.0%	4.50	-8.2%	4.50	-9.2%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.83	-7.0%	4.17	-8.2%	4.50	-9.2%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.70	-7.0%	1.85	-8.2%	2.01	-9.2%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.35	-7.0%	9.26	-8.2%	9.16	-9.2%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.83	-7.0%	0.84	-8.2%	0.86	-9.2%
Wholesale Total	**132.2**	**132.2†**	**138.6**	**138.6†**	**140.8**	**132.5†**	**142.5**	**132.5†**	**144.3**	**132.5†**	**146.0**	**132.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table E: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

	2025 (184 MGD)		**2026** (82.8 MGD)		**2027** (74.5 MGD)		**2028** (74.5 MGD)		**2029** (74.5 MGD)		**2030** (74.5 MGD)	
Agency	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0%	7.68	-43.4%	7.68	-49.3%	7.68	-49.4%	7.68	-49.5%	7.68	-49.6%
Brisbane/GVMID	0.89	0%	0.89	-43.4%	0.89	-49.3%	0.89	-49.4%	0.89	-49.5%	0.89	-49.6%
Burlingame	4.33	0%	4.34	-43.4%	4.35	-49.3%	4.37	-49.4%	4.38	-49.5%	4.40	-49.6%
Coastside	1.40	0%	1.40	-43.4%	1.39	-49.3%	1.39	-49.4%	1.38	-49.5%	1.38	-49.6%
CalWater Total	29.99	0%	29.94	-43.4%	29.89	-49.3%	29.84	-49.4%	29.79	-49.5%	29.74	-49.6%
Daly City	3.57	0%	3.56	-43.4%	3.55	-49.3%	3.54	-49.4%	3.53	-49.5%	3.52	-49.6%
East Palo Alto	1.88	0%	1.89	-43.4%	1.91	-49.3%	1.92	-49.4%	1.93	-49.5%	1.95	-49.6%
Estero	4.07	0%	4.08	-43.4%	4.08	-49.3%	4.09	-49.4%	4.10	-49.5%	4.11	-49.6%
Hayward	17.86	0%	18.02	-43.4%	18.19	-49.3%	18.35	-49.4%	18.52	-49.5%	18.68	-49.6%
Hillsborough	3.26	0%	3.26	-43.4%	3.26	-49.3%	3.26	-49.4%	3.26	-49.5%	3.25	-49.6%
Menlo Park	3.55	0%	3.58	-43.4%	3.60	-49.3%	3.63	-49.4%	3.66	-49.5%	3.68	-49.6%
Mid-Peninsula	2.86	0%	2.85	-43.4%	2.85	-49.3%	2.85	-49.4%	2.84	-49.5%	2.84	-49.6%
Millbrae	2.29	0%	2.33	-43.4%	2.37	-49.3%	2.41	-49.4%	2.46	-49.5%	2.50	-49.6%
Milpitas	6.59	0%	6.62	-43.4%	6.65	-49.3%	6.68	-49.4%	6.72	-49.5%	6.75	-49.6%
Mountain View	8.60	0%	8.66	-43.4%	8.72	-49.3%	8.78	-49.4%	8.84	-49.5%	8.90	-49.6%
North Coast	2.34	0%	2.34	-43.4%	2.33	-49.3%	2.33	-49.4%	2.33	-49.5%	2.33	-49.6%
Palo Alto	10.06	0%	10.08	-43.4%	10.10	-49.3%	10.12	-49.4%	10.13	-49.5%	10.15	-49.6%
Purissima Hills	2.09	0%	2.09	-43.4%	2.09	-49.3%	2.09	-49.4%	2.09	-49.5%	2.09	-49.6%
Redwood City	8.46	0%	8.46	-43.4%	8.47	-49.3%	8.48	-49.4%	8.49	-49.5%	8.49	-49.6%
San Bruno	3.24	0%	3.23	-43.4%	3.23	-49.3%	3.22	-49.4%	3.22	-49.5%	3.22	-49.6%
San José	4.50	0%	4.50	-43.4%	4.50	-49.3%	4.50	-49.4%	4.50	-49.5%	4.50	-49.6%
Santa Clara	4.50	0%	4.50	-43.4%	4.50	-49.3%	4.50	-49.4%	4.50	-49.5%	4.50	-49.6%
Stanford	2.01	0%	2.04	-43.4%	2.08	-49.3%	2.11	-49.4%	2.15	-49.5%	2.18	-49.6%
Sunnyvale	9.16	0%	9.19	-43.4%	9.22	-49.3%	9.24	-49.4%	9.27	-49.5%	9.30	-49.6%
Westborough	0.86	0%	0.86	-43.4%	0.86	-49.3%	0.86	-49.4%	0.85	-49.5%	0.85	-49.6%
Wholesale Total	**146.0**	**146.0†**	**146.4**	**82.8†**	**146.8**	**74.5†**	**147.1**	**74.5†**	**147.5**	**74.5†**	**147.9**	**74.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table F: Scenario 2: Without Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

	2025 (184 MGD)		**2026** (157.5 MGD)		**2027** (157.5 MGD)		**2028** (157.5 MGD)		**2029** (132.5 MGD)		**2030** (132.5 MGD)	
Agency	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	-10.2%	7.68	-10.4%
Brisbane/GVMID	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	-10.2%	0.89	-10.4%
Burlingame	4.33	0.0%	4.34	0.0%	4.35	0.0%	4.37	0.0%	4.38	-10.2%	4.40	-10.4%
Coastside	1.40	0.0%	1.40	0.0%	1.39	0.0%	1.39	0.0%	1.38	-10.2%	1.38	-10.4%
CalWater Total	29.99	0.0%	29.94	0.0%	29.89	0.0%	29.84	0.0%	29.79	-10.2%	29.74	-10.4%
Daly City	3.57	0.0%	3.56	0.0%	3.55	0.0%	3.54	0.0%	3.53	-10.2%	3.52	-10.4%
East Palo Alto	1.88	0.0%	1.89	0.0%	1.91	0.0%	1.92	0.0%	1.93	-10.2%	1.95	-10.4%
Estero	4.07	0.0%	4.08	0.0%	4.08	0.0%	4.09	0.0%	4.10	-10.2%	4.11	-10.4%
Hayward	17.86	0.0%	18.02	0.0%	18.19	0.0%	18.35	0.0%	18.52	-10.2%	18.68	-10.4%
Hillsborough	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	-10.2%	3.25	-10.4%
Menlo Park	3.55	0.0%	3.58	0.0%	3.60	0.0%	3.63	0.0%	3.66	-10.2%	3.68	-10.4%
Mid-Peninsula	2.86	0.0%	2.85	0.0%	2.85	0.0%	2.85	0.0%	2.84	-10.2%	2.84	-10.4%
Millbrae	2.29	0.0%	2.33	0.0%	2.37	0.0%	2.41	0.0%	2.46	-10.2%	2.50	-10.4%
Milpitas	6.59	0.0%	6.62	0.0%	6.65	0.0%	6.68	0.0%	6.72	-10.2%	6.75	-10.4%
Mountain View	8.60	0.0%	8.66	0.0%	8.72	0.0%	8.78	0.0%	8.84	-10.2%	8.90	-10.4%
North Coast	2.34	0.0%	2.34	0.0%	2.33	0.0%	2.33	0.0%	2.33	-10.2%	2.33	-10.4%
Palo Alto	10.06	0.0%	10.08	0.0%	10.10	0.0%	10.12	0.0%	10.13	-10.2%	10.15	-10.4%
Purissima Hills	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	-10.2%	2.09	-10.4%
Redwood City	8.46	0.0%	8.46	0.0%	8.47	0.0%	8.48	0.0%	8.49	-10.2%	8.49	-10.4%
San Bruno	3.24	0.0%	3.23	0.0%	3.23	0.0%	3.22	0.0%	3.22	-10.2%	3.22	-10.4%
San José	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-10.2%	4.50	-10.4%
Santa Clara	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-10.2%	4.50	-10.4%
Stanford	2.01	0.0%	2.04	0.0%	2.08	0.0%	2.11	0.0%	2.15	-10.2%	2.18	-10.4%
Sunnyvale	9.16	0.0%	9.19	0.0%	9.22	0.0%	9.24	0.0%	9.27	-10.2%	9.30	-10.4%
Westborough	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.85	-10.2%	0.85	-10.4%
Wholesale Total	**146.0**	**146.0†**	**146.4**	**146.4†**	**146.8**	**146.8†**	**147.1**	**147.1†**	**147.5**	**132.5†**	**147.9**	**132.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

UWMP Table 7-4

Supply Reliability Letter Tables 7 and 8 will help your agency complete UWMP Table 7-4. Table G below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-4. The table assumes (1) the Tier 2 Plan will be used to allocate supplies available to the Wholesale Customers when average Wholesale Customers' RWS shortages are greater than 10 and up to 20 percent, and (2) an equal percent reduction will be shared across all Wholesale Customers when average Wholesale Customers' RWS shortages are 10 percent or less or greater than 20 percent.

Table G: Drought Cutbacks Based on Projected Demands Under All Water Supply Availability Conditions

	(a)	(b)	(c)	(d)	(e)	(f)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
(2)	Supply Available to the Wholesale Customers	% Cutback on Wholesale RWS Purchases **2025**	**2030**	**2035**	**2040**	**2045**
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	-3.2%
(4)	132.5 MGD	-9.3%	-10.4%	Tier 2 Avg. -14%*	Tier 2 Avg. -16%*	Tier 2 Avg. -19%*
(5)	82.8 MGD	-43.3%	-44.0%	-45.5%	-47.0%	-49.1%
(6)	74.5 MGD	-49.0%	-49.6%	-51.0%	-52.3%	-54.2%

* Calculated average. Individual agency cutbacks are calculated in Table H.

Table G, column (a) lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025, 2030, 2035, 2040, and 2045.

Tables H, I, J and K provide additional detail by agency for each of the four supply availability conditions listed in Table G. To complete UWMP Table 7-4, reference Table 7 or 8 (depending on which Bay-Delta Plan scenario you choose) in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year using Table G or input the volumetric drought allocation using Tables H, I, J and K below.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table H: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 157.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2030**	**2040**	**2045**
ACWD	7.68	7.68	7.68	7.68	8.82
Burlingame	0.89	0.89	0.88	0.89	0.87
Burlingame	4.33	4.40	4.47	4.58	4.54
Coastside	1.40	1.38	1.36	1.33	1.28
CalWater Total	29.99	29.74	29.81	30.27	29.71
Daly City	3.57	3.52	3.49	3.46	3.32
East Palo Alto	1.88	1.95	2.10	2.49	2.80
Estero	4.07	4.11	4.18	4.23	4.24
Hayward	17.86	18.68	19.75	20.82	21.43
Hillsborough	3.26	3.25	3.26	3.26	3.15
Menlo Park	3.55	3.68	3.87	4.06	4.15
Mid-Peninsula	2.86	2.84	2.88	2.89	2.83
Millbrae	2.29	2.50	2.45	2.82	3.10
Milpitas	6.59	6.75	7.03	7.27	7.29
Mountain View	8.60	8.90	9.20	9.51	9.61
North Coast	2.34	2.33	2.34	2.34	2.27
Palo Alto	10.06	10.15	10.28	10.51	10.44
Purissima Hills	2.09	2.09	2.12	2.13	2.08
Redwood City	8.46	8.49	8.64	8.74	8.62
San Bruno	3.24	3.22	3.20	3.20	3.11
San José	4.50	4.50	4.50	4.50	4.35
Santa Clara	4.50	4.50	4.50	4.50	4.35
Stanford	2.01	2.18	2.35	2.53	2.61
Sunnyvale	9.16	9.30	10.70	11.44	11.71
Westborough	0.86	0.85	0.85	0.84	0.82
Wholesale Total	**146.0**	**147.9**	**151.9**	**156.3**	**157.5**

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table I: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 132.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2030**	**2040**	**2045**
ACWD	6.97	6.88	6.91	6.91	8.20
Burlingame	0.81	0.79	0.73	0.73	0.72
Burlingame	3.93	3.94	3.96	3.89	3.80
Coastside	1.27	1.24	1.22	1.20	1.19
CalWater Total	27.21	26.65	26.46	25.69	24.69
Daly City	3.24	3.15	3.04	3.01	2.98
East Palo Alto	1.70	1.75	1.97	2.30	2.62
Estero	3.69	3.68	3.76	3.87	3.77
Hayward	16.20	16.74	17.32	17.69	18.07
Hillsborough	2.96	2.92	2.90	2.75	2.56
Menlo Park	3.22	3.30	3.37	3.33	3.26
Mid-Peninsula	2.59	2.54	2.59	2.62	2.54
Millbrae	2.07	2.24	2.16	2.32	2.45
Milpitas	5.98	6.05	6.25	6.31	6.35
Mountain View	7.80	7.97	8.28	8.49	8.34
North Coast	2.12	2.09	2.11	2.11	2.11
Palo Alto	9.13	9.09	9.26	9.46	9.71
Purissima Hills	1.89	1.87	1.42	1.38	1.32
Redwood City	7.67	7.61	7.89	7.70	7.49
San Bruno	2.94	2.88	2.56	2.51	2.45
San José	4.08	4.03	3.03	2.91	2.76
Santa Clara	4.08	4.03	3.03	2.91	2.76
Stanford	1.82	1.95	2.06	2.13	2.16
Sunnyvale	8.31	8.33	9.46	9.51	9.43
Westborough	0.78	0.76	0.76	0.76	0.76
Wholesale Total	**132.5**	**132.5**	**132.5**	**132.5**	**132.5**

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table J: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 82.8 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2030**	**2040**	**2045**
ACWD	4.36	4.30	4.19	4.07	4.64
Burlingame	0.51	0.50	0.48	0.47	0.45
Burlingame	2.45	2.46	2.44	2.43	2.39
Coastside	0.79	0.77	0.74	0.71	0.68
CalWater Total	17.00	16.65	16.25	16.03	15.62
Daly City	2.02	1.97	1.90	1.83	1.75
East Palo Alto	1.06	1.09	1.14	1.32	1.47
Estero	2.31	2.30	2.28	2.24	2.23
Hayward	10.13	10.46	10.77	11.03	11.26
Hillsborough	1.85	1.82	1.78	1.73	1.66
Menlo Park	2.01	2.06	2.11	2.15	2.18
Mid-Peninsula	1.62	1.59	1.57	1.53	1.49
Millbrae	1.30	1.40	1.34	1.49	1.63
Milpitas	3.74	3.78	3.83	3.85	3.83
Mountain View	4.88	4.98	5.01	5.04	5.05
North Coast	1.33	1.30	1.28	1.24	1.19
Palo Alto	5.71	5.68	5.61	5.57	5.49
Purissima Hills	1.18	1.17	1.15	1.13	1.10
Redwood City	4.80	4.76	4.71	4.63	4.53
San Bruno	1.83	1.80	1.75	1.70	1.63
San José	2.55	2.52	2.45	2.38	2.29
Santa Clara	2.55	2.52	2.45	2.38	2.29
Stanford	1.14	1.22	1.28	1.34	1.37
Sunnyvale	5.19	5.21	5.83	6.06	6.16
Westborough	0.49	0.48	0.46	0.45	0.43
Wholesale Total	**82.8**	**82.8**	**82.8**	**82.8**	**82.8**

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table K: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 74.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2030**	**2040**	**2045**
ACWD	3.92	3.87	3.77	3.66	4.17
Burlingame	0.46	0.45	0.43	0.42	0.41
Burlingame	2.21	2.21	2.19	2.18	2.15
Coastside	0.71	0.70	0.67	0.64	0.61
CalWater Total	15.30	14.98	14.62	14.43	14.05
Daly City	1.82	1.77	1.71	1.65	1.57
East Palo Alto	0.96	0.98	1.03	1.19	1.32
Estero	2.08	2.07	2.05	2.02	2.00
Hayward	9.11	9.41	9.69	9.92	10.14
Hillsborough	1.66	1.64	1.60	1.55	1.49
Menlo Park	1.81	1.86	1.90	1.94	1.96
Mid-Peninsula	1.46	1.43	1.41	1.38	1.34
Millbrae	1.17	1.26	1.20	1.34	1.47
Milpitas	3.36	3.40	3.45	3.47	3.45
Mountain View	4.39	4.48	4.51	4.53	4.54
North Coast	1.19	1.17	1.15	1.12	1.07
Palo Alto	5.14	5.11	5.04	5.01	4.94
Purissima Hills	1.06	1.05	1.04	1.02	0.99
Redwood City	4.31	4.28	4.24	4.17	4.08
San Bruno	1.65	1.62	1.57	1.53	1.47
San José	2.30	2.27	2.21	2.14	2.06
Santa Clara	2.30	2.27	2.21	2.14	2.06
Stanford	1.03	1.10	1.15	1.21	1.24
Sunnyvale	4.67	4.69	5.25	5.45	5.54
Westborough	0.44	0.43	0.41	0.40	0.39
Wholesale Total	**74.5**	**74.5**	**74.5**	**74.5**	**74.5**

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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March 30, 2021

Danielle McPherson
Senior Water Resources Specialist
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Dear Ms. McPherson,

Attached please find additional supply reliability modeling results conducted by the SFPUC. The SFPUC has conducted additional supply reliability modeling under the following planning scenarios:

- Projected supply reliability for years 2020 through 2045, assuming that demand is equivalent to the sum of the projected retail demands on the Regional Water System (RWS) and Wholesale Customer purchase request projections provided to SFPUC by BAWSCA on January 21st (see Table 1 below).
- Under the above demand conditions, projected supply reliability for scenarios both with and without implementation of the Bay-Delta Plan Amendment starting in 2023.

The SFPUC will be using this supply modeling in the text of its draft UWMP and moving the original modeling results into an appendix.

Table 1: Retail and Wholesale RWS Demand Assumptions Used for Additional Supply Reliability Modeling (mgd)

	2020	2025	2030	2035	2040	2045
Retail	66.5	67.2	67.5	68.6	70.5	73.7
Wholesale[1, 2]	132.1	146.0	147.9	151.9	156.3	162.8
Total	**198.6**	**213.2**	**215.4**	**220.5**	**226.8**	**236.5**

[1] Wholesale purchase request projections provided to the SFPUC by BAWSCA on January 21st, 2021
[2] Includes demands for Cities of San Jose and Santa Clara

Please note the following about the information presented in the attached tables:

London N. Breed
Mayor

Sophie Maxwell
President

Anson Moran
Vice President

Tim Paulson
Commissioner

Ed Harrington
Commissioner

Michael Carlin
Acting
General Manager

- Assumptions about infrastructure conditions remain the same as what was provided in our January 22nd letter.
- The Tier 1 allocations were applied to the RWS supplies to determine the wholesale supply, as was also described in the January 22nd letter; for any system-wide shortage above 20%, the Tier 1 split for a 20% shortage was applied.
- The SFPUC water supply planning methodology, including simulation of an 8.5-year design drought, is used to develop these estimates of water supply available from the RWS for five dry years. In each demand scenario for 2020 through 2045, the RWS deliveries are estimated using the standard SFPUC procedure, which includes adding increased levels of rationing as needed to balance the demands on the RWS system with available water supply. Some simulations may have increased levels of rationing in the final years of the design drought sequence, which can influence the comparison of results in the first five years of the sequence.
- Tables 7 and 8 in the attached document provide RWS and wholesale supply availability for the five-year drought risk assessment from 2021 to 2025. SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Therefore, the supply projections for 2021 to 2025 are based on meeting 2020 levels of demand. However, in years when the Bay-Delta Plan Amendment is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. This is not reflected in Tables 7 and 8 because SFPUC did not want to make assumptions about the growth of purchase requests between 2020 and 2025.

In our draft UWMP, we acknowledge that we have a Level of Service objective of meeting average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non-drought years, as well as a contractual obligation to supply 184 mgd to the Wholesale Customers. Therefore, we will still include the results of our modeling based on a demand of 265 mgd in order to facilitate planning that supports meeting this Level of Service objective and our contractual obligations. The results of this modeling will be in an appendix to the draft UWMP. As will be shown in this appendix, in a normal year the SFPUC can provide up to 265 mgd of supply from the RWS. The RWS supply projections shown in the attached tables are more accurately characterized as supplies that will be used to meet projected retail and Wholesale Customer demands.

It is our understanding that you will pass this information on to the Wholesale Customers. If you have any questions or need additional information, please do not hesitate to contact Sarah Triolo, at striolo@sfwater.org or (628) 230 0802.

Sincerely,

Paula Kehoe
Director of Water Resources

Table 2: Projected Total RWS Supply Utilized and Portion of RWS Supply Utilized by Wholesale Customers in Normal Years [For Table 6-9]:

Year	2020	2025	2030	2035	2040	2045
RWS Supply Utilized (mgd)	198.6	213.2	215.4	220.5	226.8	236.5
RWS Supply Utilized by Wholesale Customers[a] (mgd)	132.1	146.0	147.9	151.9	156.3	162.8

[a] RWS supply utilized by Wholesale Customers is equivalent to purchase request projections provided to SFPUC by BAWSCA on January 21, 2021, and includes Cities of San Jose and Santa Clara.

Basis of Water Supply Data: With Bay-Delta Plan Amendment

Table 3a: Basis of Water Supply Data [For Table 7-1], Base Year 2020, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	198.6	100%	132.1	
Single dry year		198.6	100%	132.1	
Consecutive 1st Dry year		198.6	100%	132.1	
Consecutive 2nd Dry year		198.6	100%	132.1	
Consecutive 3rd Dry year[1]		119.2	60%	74.5	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 4th Dry year		119.2	60%	74.5	• Same as above
Consecutive 5th Dry year		119.2	60%	74.5	• Same as above

[1] Assuming this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Table 3b: Basis of Water Supply Data [For Table 7-1], Base Year 2025, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	213.2	100%	146.0	
Single dry year		149.2	70%	93.3	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		149.2	70%	93.3	• Same as above
Consecutive 2nd Dry year		127.9	60%	80.0	• Same as above
Consecutive 3rd Dry year		127.9	60%	80.0	• Same as above
Consecutive 4th Dry year		127.9	60%	80.0	• Same as above
Consecutive 5th Dry year		127.9	60%	80.0	• Same as above

Table 3c: Basis of Water Supply Data [For Table 7-1], Base Year 2030, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2030	215.4	100%	147.9	
Single dry year		150.8	70%	94.2	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		150.8	70%	94.2	• Same as above
Consecutive 2nd Dry year		129.2	60%	80.8	• Same as above
Consecutive 3rd Dry year		129.2	60%	80.8	• Same as above
Consecutive 4th Dry year		129.2	60%	80.8	• Same as above
Consecutive 5th Dry year		129.2	60%	80.8	• Same as above

Table 3d: Basis of Water Supply Data [For Table 7-1], Base Year 2035, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2035	220.5	100%	151.9	
Single dry year		154.4	70%	96.5	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		154.4	70%	96.5	• Same as above
Consecutive 2nd Dry year		132.3	60%	82.7	• Same as above
Consecutive 3rd Dry year		132.3	60%	82.7	• Same as above
Consecutive 4th Dry year		132.3	60%	82.7	• Same as above
Consecutive 5th Dry year		121.3	55%	75.8	• Same as above

Table 3e: Basis of Water Supply Data [For Table 7-1], Base Year 2040, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2040	226.8	100%	156.3	
Single dry year		158.8	70%	99.2	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		158.8	70%	99.2	• Same as above
Consecutive 2nd Dry year		136.1	60%	85.1	• Same as above
Consecutive 3rd Dry year		136.1	60%	85.1	• Same as above
Consecutive 4th Dry year		120.2	53%	75.1	• Same as above
Consecutive 5th Dry year		120.2	53%	75.1	• Same as above

Table 3f: Basis of Water Supply Data [For Table 7-1], Base Year 2045, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2045	236.5	100%	162.8	
Single dry year		141.9	60%	88.7	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		141.9	60%	88.7	• Same as above
Consecutive 2nd Dry year		141.9	60%	88.7	• Same as above
Consecutive 3rd Dry year		141.9	60%	88.7	• Same as above
Consecutive 4th Dry year		120.6	51%	75.4	• Same as above
Consecutive 5th Dry year		120.6	51%	75.4	• Same as above

Table 3g: Projected RWS Supply Availability [Alternative to Table 7-1], Years 2020-2045, With Bay-Delta Plan Amendment

Year	2020	2025	2030	2035	2040	2045
Average year	100%	100%	100%	100%	100%	100%
Single dry year	100%	70%	70%	70%	70%	60%
Consecutive 1st Dry year	100%	70%	70%	70%	70%	60%
Consecutive 2nd Dry year	100%	60%	60%	60%	60%	60%
Consecutive 3rd Dry year[1]	60%	60%	60%	60%	60%	60%
Consecutive 4th Dry year	60%	60%	60%	60%	53%	51%
Consecutive 5th Dry year	60%	60%	60%	55%	53%	51%

[1] Assuming that at base year 2020, this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Basis of Water Supply Data: Without Bay-Delta Plan Amendment

Table 4a: Basis of Water Supply Data [For Table 7-1], Base Year 2020, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	198.6	100%	132.1	
Single dry year		198.6	100%	132.1	
Consecutive 1st Dry year		198.6	100%	132.1	
Consecutive 2nd Dry year		198.6	100%	132.1	
Consecutive 3rd Dry year		198.6	100%	132.1	
Consecutive 4th Dry year		198.6	100%	132.1	
Consecutive 5th Dry year		198.6	100%	132.1	

Table 4b: Basis of Water Supply Data [For Table 7-1], Base Year 2025, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	213.2	100%	146.0	
Single dry year		213.2	100%	146.0	
Consecutive 1st Dry year		213.2	100%	146.0	
Consecutive 2nd Dry year		213.2	100%	146.0	
Consecutive 3rd Dry year		213.2	100%	146.0	
Consecutive 4th Dry year		213.2	100%	146.0	
Consecutive 5th Dry year		213.2	100%	146.0	

Table 4c: Basis of Water Supply Data [For Table 7-1], Base Year 2030, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2030	215.4	100%	147.9	
Single dry year		215.4	100%	147.9	
Consecutive 1st Dry year		215.4	100%	147.9	
Consecutive 2nd Dry year		215.4	100%	147.9	
Consecutive 3rd Dry year		215.4	100%	147.9	
Consecutive 4th Dry year		215.4	100%	147.9	
Consecutive 5th Dry year		215.4	100%	147.9	

Table 4d: Basis of Water Supply Data [For Table 7-1], Base Year 2035, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2035	220.5	100%	151.9	
Single dry year		220.5	100%	151.9	
Consecutive 1st Dry year		220.5	100%	151.9	
Consecutive 2nd Dry year		220.5	100%	151.9	
Consecutive 3rd Dry year		220.5	100%	151.9	
Consecutive 4th Dry year		220.5	100%	151.9	
Consecutive 5th Dry year		220.5	100%	151.9	

Table 4e: Basis of Water Supply Data [For Table 7-1], Base Year 2040, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2040	226.8	100%	156.3	
Single dry year		226.8	100%	156.3	
Consecutive 1st Dry year		226.8	100%	156.3	
Consecutive 2nd Dry year		226.8	100%	156.3	
Consecutive 3rd Dry year		226.8	100%	156.3	
Consecutive 4th Dry year		226.8	100%	156.3	
Consecutive 5th Dry year		226.8	100%	156.3	

Table 4f: Basis of Water Supply Data [For Table 7-1], Base Year 2045, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2045	236.5	100%	162.8	
Single dry year		236.5	100%	162.8	
Consecutive 1st Dry year		236.5	100%	162.8	
Consecutive 2nd Dry year		236.5	100%	162.8	
Consecutive 3rd Dry year		236.5	100%	162.8	
Consecutive 4th Dry year		212.8	90%	139.1	• At a 10% shortage level, the wholesale allocation is 64% of available supply • The retail allocation is 36% of supply, which resulted in a positive allocation to retail of 2.9 mgd, which was re-allocated to the Wholesale Customers
Consecutive 5th Dry year		212.8	90%	139.1	• Same as above

Table 4g: Projected RWS Supply [Alternative to Table 7-1], Years 2020-2045, Without Bay-Delta Plan Amendment

Year	2020	2025	2030	2035	2040	2045
Average year	100%	100%	100%	100%	100%	100%
Single dry year	100%	100%	100%	100%	100%	100%
Consecutive 1st Dry year	100%	100%	100%	100%	100%	100%
Consecutive 2nd Dry year	100%	100%	100%	100%	100%	100%
Consecutive 3rd Dry year	100%	100%	100%	100%	100%	100%
Consecutive 4th Dry year	100%	100%	100%	100%	100%	90%
Consecutive 5th Dry year	100%	100%	100%	100%	100%	90%

Supply Projections for Consecutive Five Dry Year Sequences

Table 5: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], With Bay-Delta Plan Amendment

	2025	**2030**	**2035**	**2040**	**2045**
First year	93.3	94.2	96.5	99.2	88.7
Second year	80.0	80.8	82.7	85.1	88.7
Third year	80.0	80.8	82.7	85.1	88.7
Fourth year	80.0	80.8	82.7	75.1	75.4
Fifth year	80.0	80.8	75.8	75.1	75.4

Table 6: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], Without Bay-Delta Plan Amendment

	2025	**2030**	**2035**	**2040**	**2045**
First year	146.0	147.9	151.9	156.3	162.8
Second year	146.0	147.9	151.9	156.3	162.8
Third year	146.0	147.9	151.9	156.3	162.8
Fourth year	146.0	147.9	151.9	156.3	139.1
Fifth year	146.0	147.9	151.9	156.3	139.1

Table 7: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], With Bay-Delta Plan Amendment. This table assumes Bay Delta Plan comes into effect in 2023.

Year	**2021**	**2022**	**2023**	**2024**	**2025**
RWS Supply (mgd)	198.6	198.6	119.2	119.2	119.2
Wholesale Supply (mgd)	132.1	132.1	74.5	74.5	74.5

Table 8: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], Without Bay Delta Plan

Year	**2021**	**2022**	**2023**	**2024**	**2025**
RWS Supply (mgd)	198.6	198.6	198.6	198.6	198.6
Wholesale Supply (mgd)	132.1	132.1	132.1	132.1	132.1

Section 1: Basis for Calculations. Projected Wholesale RWS Purchases Through 2045

Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045 (mgd)[a]

Agency	2020 Actual	Projected Wholesale RWS Purchases 2025	2030	2035	2040	2045
ACWD	7.87	7.68	7.68	7.68	7.68	9.11
Brisbane/GVMID	0.64	0.89	0.89	0.88	0.89	0.89
Burlingame	3.48	4.33	4.40	4.47	4.58	4.69
Coastside	1.02	1.40	1.38	1.36	1.33	1.33
CalWater Total	29.00	29.99	29.74	29.81	30.27	30.70
Daly City	3.97	3.57	3.52	3.49	3.46	3.43
East Palo Alto	1.57	1.88	1.95	2.10	2.49	2.89
Estero	4.34	4.07	4.11	4.18	4.23	4.38
Hayward	13.92	17.86	18.68	19.75	20.82	22.14
Hillsborough	2.62	3.26	3.25	3.26	3.26	3.26
Menlo Park	2.96	3.55	3.68	3.87	4.06	4.29
Mid-Peninsula	2.66	2.86	2.84	2.88	2.89	2.93
Millbrae	1.90	2.29	2.50	2.45	2.82	3.20
Milpitas	5.92	6.59	6.75	7.03	7.27	7.53
Mountain View	7.67	8.60	8.90	9.20	9.51	9.93
North Coast	2.37	2.34	2.33	2.34	2.34	2.34
Palo Alto	9.75	10.06	10.15	10.28	10.51	10.79
Purissima Hills	1.75	2.09	2.09	2.12	2.13	2.15
Redwood City	8.76	8.46	8.49	8.64	8.74	8.90
San Bruno	0.95	3.24	3.22	3.20	3.20	3.21
San Jose	4.26	4.50	4.50	4.50	4.50	4.50
Santa Clara	3.27	4.50	4.50	4.50	4.50	4.50
Stanford	1.43	2.01	2.18	2.35	2.53	2.70
Sunnyvale	9.33	9.16	9.30	10.70	11.44	12.10
Westborough	0.82	0.86	0.85	0.85	0.84	0.84
Total	**132.22**	**146.01**	**147.87**	**151.90**	**156.31**	**162.76**

[a] Wholesale RWS purchase projections for 2025, 2030, 2035, 2040, and 2045 were provided to BAWSCA between July 2020 and January 2021 by the Member Agencies following the completion of the June 2020 Demand Study.

Table B: Basis for the 5-Year Drought Risk Assessment Wholesale RWS Actual Purchases in 2020 and 2021-2025 Projected Purchases (mgd)

Agency	2020 Actual	Projected and Estimated Wholesale RWS Purchases 2021[b]	2022[b]	2023[c]	2024[c]	2025[c]
ACWD	7.87	9.44	9.46	9.46	9.46	9.46
Brisbane/GVMID	0.64	0.62	0.65	0.65	0.65	0.65
Burlingame	3.48	3.34	3.35	3.35	3.35	3.35
Coastside	1.02	1.54	1.23	1.23	1.23	1.23
CalWater Total	29.00	29.66	29.81	29.81	29.81	29.81
Daly City	3.97	4.00	4.01	4.01	4.01	4.01
East Palo Alto	1.57	1.63	1.69	1.69	1.69	1.69
Estero	4.34	4.48	4.51	4.51	4.51	4.51
Hayward	13.92	14.47	15.12	15.12	15.12	15.12
Hillsborough	2.62	2.95	3.05	3.05	3.05	3.05
Menlo Park	2.96	2.92	2.93	2.93	2.93	2.93
Mid-Peninsula	2.66	2.65	2.80	2.80	2.80	2.80
Millbrae	1.90	1.95	2.15	2.15	2.15	2.15
Milpitas	5.92	5.88	5.34	5.34	5.34	5.34
Mountain View	7.67	7.80	8.05	8.05	8.05	8.05
North Coast	2.37	2.58	2.66	2.66	2.66	2.66
Palo Alto	9.75	9.44	9.66	9.66	9.66	9.66
Purissima Hills	1.75	1.97	2.02	2.02	2.02	2.02
Redwood City	8.76	8.72	9.07	9.07	9.07	9.07
San Bruno	0.95	3.39	3.40	3.40	3.40	3.40
San Jose	4.26	4.31	4.51	4.51	4.51	4.51
Santa Clara	3.27	3.29	3.50	3.50	3.50	3.50
Stanford	1.43	1.40	1.54	1.54	1.54	1.54
Sunnyvale	9.33	9.35	9.45	9.45	9.45	9.45
Westborough	0.82	0.84	0.81	0.81	0.81	0.81
Total	**132.22**	**138.61**	**140.77**	**140.77**	**140.77**	**140.77**

[b] Wholesale RWS purchase projections for 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January 2021.

[c] The SFPUC's supply reliability tables assume the Bay-Delta Plan takes effect in 2023. In the event of a shortage, the Tier 2 Plan specifies that each agencies' Allocation Factor would be calculated once at the onset of a shortage based on the previous year's use and remains the same until the shortage condition is over. Therefore, for the purpose of drought allocations for the 5-year Drought Risk Assessment, wholesale RWS demand is assumed to remain static from 2022 through the drought sequence.

Section 2: Drought Allocations ***With*** Bay-Delta Plan

Table C: RWS Supply Available to the Wholesale Customers (Combined Tables 3a-3f from the SFPUC's March 30th letter) *With* Bay-Delta Plan (mgd)

	2020[e]	2025	2030	2035	2040	2045
Projected Purchases[d]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	138.6	93.3	94.2	96.5	99.2	88.7
Consecutive 2nd Dry Year	140.8	80.0	80.8	82.7	85.1	88.7
Consecutive 3rd Dry Year	74.5	80.0	80.8	82.7	85.1	88.7
Consecutive 4th Dry Year	74.5	80.0	80.8	82.7	75.1	75.4
Consecutive 5th Dry Year	74.5	80.0	80.8	75.8	75.1	75.4

[d] Values for 2020 are actual purchases. This row aligns with what is labeled as an "Average Year" in Tables 3a-3f in the SFPUC's March 30th letter. However, these values do not represent an average year and instead are actual purchases for 2020 or projected purchases for 2025 through 2045.

[e] In years when the Bay-Delta Plan is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. As such, RWS supply available to the Wholesale Customers in the 1st and 2nd consecutive dry years under base year 2020 is equal to the cumulative projected wholesale RWS purchases for 2021 and 2022, respectively.

Table D: Wholesale RWS Demand (Combined Totals from Tables A and B) (mgd)[f]

	2020	2025	2030	2035	2040	2045
Projected Purchases[d]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	138.6	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 5th Dry Year	140.8	146.0	147.9	151.9	156.3	162.8

[f] The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. When system-wide shortages are projected, wholesale RWS demand is assumed to be static for the remainder of the drought sequence.

Table E: Percent Cutback to the Wholesale Customers *With* Bay-Delta Plan[g]

	2020	2025	2030	2035	2040	2045
Projected Purchases[d]	0%	0%	0%	0%	0%	0%
Consecutive 1st Dry Year	0%	36%	36%	36%	37%	46%
Consecutive 2nd Dry Year	0%	45%	45%	46%	46%	46%
Consecutive 3rd Dry Year	47%	45%	45%	46%	46%	46%
Consecutive 4th Dry Year	47%	45%	45%	46%	52%	54%
Consecutive 5th Dry Year	47%	45%	45%	50%	52%	54%

[g] Agencies that wish to use new or different projected RWS purchases may use the percent cutbacks listed in this table to determine their drought allocation.

Table F1: Basis of Water Supply Data [For Tables 7-1 and 7-5], Base Year 2020, *With* Bay-Delta Plan (mgd)

Year Consecutive Dry Year	2020 Actual	2021 1st	2022 2nd	2023 3rd	2024 4th	2025 5th
Wholesale RWS Demand	132.2	138.6	140.8	140.8	140.8	140.8
Wholesale RWS Supply Available	132.2	138.6	140.8	74.5	74.5	74.5
Percent Cutback	0%	0%	0%	47%	47%	47%

Table F2: Individual Agency Drought Allocations [For Tables 7-1 and 7-5], Base Year 2020, *With* Bay-Delta Plan (mgd)

	2020	Wholesale RWS Drought Allocations				
Agency	**Actual**	**2021**	**2022**	**2023**	**2024**	**2025**
ACWD	7.87	9.44	9.46	5.01	5.01	5.01
Brisbane/GVMID	0.64	0.62	0.65	0.34	0.34	0.34
Burlingame	3.48	3.34	3.35	1.77	1.77	1.77
Coastside	1.02	1.54	1.23	0.65	0.65	0.65
CalWater Total	29.00	29.66	29.81	15.78	15.78	15.78
Daly City	3.97	4.00	4.01	2.12	2.12	2.12
East Palo Alto	1.57	1.63	1.69	0.89	0.89	0.89
Estero	4.34	4.48	4.51	2.39	2.39	2.39
Hayward	13.92	14.47	15.12	8.00	8.00	8.00
Hillsborough	2.62	2.95	3.05	1.61	1.61	1.61
Menlo Park	2.96	2.92	2.93	1.55	1.55	1.55
Mid-Peninsula	2.66	2.65	2.80	1.48	1.48	1.48
Millbrae	1.90	1.95	2.15	1.14	1.14	1.14
Milpitas	5.92	5.88	5.34	2.83	2.83	2.83
Mountain View	7.67	7.80	8.05	4.26	4.26	4.26
North Coast	2.37	2.58	2.66	1.41	1.41	1.41
Palo Alto	9.75	9.44	9.66	5.11	5.11	5.11
Purissima Hills	1.75	1.97	2.02	1.07	1.07	1.07
Redwood City	8.76	8.72	9.07	4.80	4.80	4.80
San Bruno	0.95	3.39	3.40	1.80	1.80	1.80
San Jose	4.26	4.31	4.51	2.39	2.39	2.39
Santa Clara	3.27	3.29	3.50	1.85	1.85	1.85
Stanford	1.43	1.40	1.54	0.82	0.82	0.82
Sunnyvale	9.33	9.35	9.45	5.00	5.00	5.00
Westborough	0.82	0.84	0.81	0.43	0.43	0.43
Total	**132.2**	**138.6**	**140.8**	**74.5**	**74.5**	**74.5**

Table G1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2025, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	146.0	146.0	146.0	146.0	146.0
Wholesale RWS Supply Available	93.3	80.0	80.0	80.0	80.0
Percent Cutback	36%	45%	45%	45%	45%

Table G2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2025, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.91	4.21	4.21	4.21	4.21
Brisbane/GVMID	0.57	0.49	0.49	0.49	0.49
Burlingame	2.76	2.37	2.37	2.37	2.37
Coastside	0.89	0.77	0.77	0.77	0.77
CalWater Total	19.16	16.43	16.43	16.43	16.43
Daly City	2.28	1.96	1.96	1.96	1.96
East Palo Alto	1.20	1.03	1.03	1.03	1.03
Estero	2.60	2.23	2.23	2.23	2.23
Hayward	11.41	9.78	9.78	9.78	9.78
Hillsborough	2.08	1.79	1.79	1.79	1.79
Menlo Park	2.27	1.95	1.95	1.95	1.95
Mid-Peninsula	1.83	1.57	1.57	1.57	1.57
Millbrae	1.46	1.25	1.25	1.25	1.25
Milpitas	4.21	3.61	3.61	3.61	3.61
Mountain View	5.49	4.71	4.71	4.71	4.71
North Coast	1.49	1.28	1.28	1.28	1.28
Palo Alto	6.43	5.51	5.51	5.51	5.51
Purissima Hills	1.33	1.14	1.14	1.14	1.14
Redwood City	5.40	4.63	4.63	4.63	4.63
San Bruno	2.07	1.77	1.77	1.77	1.77
San Jose	2.88	2.47	2.47	2.47	2.47
Santa Clara	2.88	2.47	2.47	2.47	2.47
Stanford	1.28	1.10	1.10	1.10	1.10
Sunnyvale	5.85	5.02	5.02	5.02	5.02
Westborough	0.55	0.47	0.47	0.47	0.47
Total	**93.3**	**80.0**	**80.0**	**80.0**	**80.0**

Table H1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2030, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	147.9	147.9	147.9	147.9	147.9
Wholesale RWS Supply Available	94.2	80.8	80.8	80.8	80.8
Percent Cutback	36%	45%	45%	45%	45%

Table H2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2030, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.89	4.20	4.20	4.20	4.20
Brisbane/GVMID	0.56	0.48	0.48	0.48	0.48
Burlingame	2.80	2.40	2.40	2.40	2.40
Coastside	0.88	0.75	0.75	0.75	0.75
CalWater Total	18.94	16.25	16.25	16.25	16.25
Daly City	2.24	1.92	1.92	1.92	1.92
East Palo Alto	1.24	1.07	1.07	1.07	1.07
Estero	2.62	2.24	2.24	2.24	2.24
Hayward	11.90	10.21	10.21	10.21	10.21
Hillsborough	2.07	1.78	1.78	1.78	1.78
Menlo Park	2.35	2.01	2.01	2.01	2.01
Mid-Peninsula	1.81	1.55	1.55	1.55	1.55
Millbrae	1.59	1.37	1.37	1.37	1.37
Milpitas	4.30	3.69	3.69	3.69	3.69
Mountain View	5.67	4.86	4.86	4.86	4.86
North Coast	1.48	1.27	1.27	1.27	1.27
Palo Alto	6.47	5.55	5.55	5.55	5.55
Purissima Hills	1.33	1.14	1.14	1.14	1.14
Redwood City	5.41	4.64	4.64	4.64	4.64
San Bruno	2.05	1.76	1.76	1.76	1.76
San Jose	2.87	2.46	2.46	2.46	2.46
Santa Clara	2.87	2.46	2.46	2.46	2.46
Stanford	1.39	1.19	1.19	1.19	1.19
Sunnyvale	5.92	5.08	5.08	5.08	5.08
Westborough	0.54	0.47	0.47	0.47	0.47
Total	**94.2**	**80.8**	**80.8**	**80.8**	**80.8**

Table I1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2035, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	151.9	151.9	151.9	151.9	151.9
Wholesale RWS Supply Available	96.5	82.7	82.7	82.7	75.8
Percent Cutback	36%	46%	46%	46%	50%

Table I2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2035, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.88	4.18	4.18	4.18	3.83
Brisbane/GVMID	0.56	0.48	0.48	0.48	0.44
Burlingame	2.84	2.44	2.44	2.44	2.23
Coastside	0.86	0.74	0.74	0.74	0.68
CalWater Total	18.94	16.23	16.23	16.23	14.88
Daly City	2.22	1.90	1.90	1.90	1.74
East Palo Alto	1.33	1.14	1.14	1.14	1.05
Estero	2.66	2.28	2.28	2.28	2.09
Hayward	12.55	10.75	10.75	10.75	9.86
Hillsborough	2.07	1.78	1.78	1.78	1.63
Menlo Park	2.46	2.10	2.10	2.10	1.93
Mid-Peninsula	1.83	1.57	1.57	1.57	1.44
Millbrae	1.56	1.34	1.34	1.34	1.22
Milpitas	4.47	3.83	3.83	3.83	3.51
Mountain View	5.84	5.01	5.01	5.01	4.59
North Coast	1.49	1.27	1.27	1.27	1.17
Palo Alto	6.53	5.60	5.60	5.60	5.13
Purissima Hills	1.34	1.15	1.15	1.15	1.06
Redwood City	5.49	4.70	4.70	4.70	4.31
San Bruno	2.03	1.74	1.74	1.74	1.60
San Jose	2.86	2.45	2.45	2.45	2.25
Santa Clara	2.86	2.45	2.45	2.45	2.25
Stanford	1.49	1.28	1.28	1.28	1.17
Sunnyvale	6.80	5.83	5.83	5.83	5.34
Westborough	0.54	0.46	0.46	0.46	0.42
Total	**96.5**	**82.7**	**82.7**	**82.7**	**75.8**

Table J1: Basis of Water Supply Data [For Table 7-1 and 7-4], Base Year 2040, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	156.3	156.3	156.3	156.3	156.3
Wholesale RWS Supply Available	99.2	85.1	85.1	75.1	75.1
Percent Cutback	37%	46%	46%	52%	52%

Table J2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2040, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	**1st**	**2nd**	**3rd**	**4th**	**5th**
ACWD	4.87	4.18	4.18	3.69	3.69
Brisbane/GVMID	0.56	0.48	0.48	0.43	0.43
Burlingame	2.91	2.49	2.49	2.20	2.20
Coastside	0.85	0.73	0.73	0.64	0.64
CalWater Total	19.21	16.48	16.48	14.54	14.54
Daly City	2.20	1.88	1.88	1.66	1.66
East Palo Alto	1.58	1.36	1.36	1.20	1.20
Estero	2.69	2.30	2.30	2.03	2.03
Hayward	13.21	11.34	11.34	10.00	10.00
Hillsborough	2.07	1.78	1.78	1.57	1.57
Menlo Park	2.58	2.21	2.21	1.95	1.95
Mid-Peninsula	1.84	1.58	1.58	1.39	1.39
Millbrae	1.79	1.53	1.53	1.35	1.35
Milpitas	4.62	3.96	3.96	3.49	3.49
Mountain View	6.03	5.18	5.18	4.57	4.57
North Coast	1.49	1.27	1.27	1.12	1.12
Palo Alto	6.67	5.72	5.72	5.05	5.05
Purissima Hills	1.35	1.16	1.16	1.03	1.03
Redwood City	5.55	4.76	4.76	4.20	4.20
San Bruno	2.03	1.74	1.74	1.54	1.54
San Jose	2.86	2.45	2.45	2.16	2.16
Santa Clara	2.86	2.45	2.45	2.16	2.16
Stanford	1.61	1.38	1.38	1.22	1.22
Sunnyvale	7.26	6.23	6.23	5.49	5.49
Westborough	0.54	0.46	0.46	0.41	0.41
Total	**99.2**	**85.1**	**85.1**	**75.1**	**75.1**

Table K1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2045, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	162.8	162.8	162.8	162.8	162.8
Wholesale RWS Supply Available	88.7	88.7	88.7	75.4	75.4
Percent Cutback	46%	46%	46%	54%	54%

Table K2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2045, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.97	4.97	4.97	4.22	4.22
Brisbane/GVMID	0.49	0.49	0.49	0.41	0.41
Burlingame	2.56	2.56	2.56	2.17	2.17
Coastside	0.72	0.72	0.72	0.61	0.61
CalWater Total	16.73	16.73	16.73	14.22	14.22
Daly City	1.87	1.87	1.87	1.59	1.59
East Palo Alto	1.58	1.58	1.58	1.34	1.34
Estero	2.39	2.39	2.39	2.03	2.03
Hayward	12.07	12.07	12.07	10.26	10.26
Hillsborough	1.78	1.78	1.78	1.51	1.51
Menlo Park	2.34	2.34	2.34	1.99	1.99
Mid-Peninsula	1.59	1.59	1.59	1.36	1.36
Millbrae	1.74	1.74	1.74	1.48	1.48
Milpitas	4.11	4.11	4.11	3.49	3.49
Mountain View	5.41	5.41	5.41	4.60	4.60
North Coast	1.28	1.28	1.28	1.09	1.09
Palo Alto	5.88	5.88	5.88	5.00	5.00
Purissima Hills	1.17	1.17	1.17	1.00	1.00
Redwood City	4.85	4.85	4.85	4.12	4.12
San Bruno	1.75	1.75	1.75	1.49	1.49
San Jose	2.45	2.45	2.45	2.08	2.08
Santa Clara	2.45	2.45	2.45	2.08	2.08
Stanford	1.47	1.47	1.47	1.25	1.25
Sunnyvale	6.59	6.59	6.59	5.61	5.61
Westborough	0.46	0.46	0.46	0.39	0.39
Total	**88.7**	**88.7**	**88.7**	**75.4**	**75.4**

Section 3: Drought Allocations ***Without*** Bay-Delta Plan

Table L: RWS Supply Available to the Wholesale Customers (Combined Tables 4a-4f from the SFPUC's March 30th letter) *Without* Bay-Delta Plan (mgd)[h]

	2020	2025	2030	2035	2040	2045
Projected Purchases[i]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	132.2	146.0	147.9	151.9	156.3	139.1
Consecutive 5th Dry Year	132.2	146.0	147.9	151.9	156.3	139.1

[h] The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. However, the SFPUC has indicated that sufficient supplies are available to meet wholesale RWS demand so long as they reasonably stay within 2020 and 2040 levels. The SFPUC's modeling does not indicate cutbacks will be required till the 4th and 5th consecutive dry year at 2045 levels.

[i] Values for 2020 are actual purchases. This row aligns with what is labeled as an "Average Year" in Tables 4a-4f in the SFPUC's March 30th letter. However, these values do not represent an average year and instead are actual purchases for 2020 or projected purchases for 2025 through 2045.

Table M: Wholesale RWS Demand (Combined Totals from Tables A and B) (mgd)

	2020	2025	2030	2035	2040	2045
Projected Purchases[i]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 5th Dry Year	132.2	146.0	147.9	151.9	156.3	162.8

Table N: Percent Cutback to the Wholesale Customers *Without* Bay-Delta Plan

	2020	2025	2030	2035	2040	2045
Projected Purchases[i]	0%	0%	0%	0%	0%	0%
Consecutive 1st Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 2nd Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 3rd Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 4th Dry Year	0%	0%	0%	0%	0%	15%
Consecutive 5th Dry Year	0%	0%	0%	0%	0%	15%

Table O1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2045, *Without* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	162.8	162.8	162.8	162.8	162.8
Wholesale RWS Supply Available	162.8	162.8	162.8	139.1	139.1
Percent Cutback	0%	0%	0%	Tier 2 Plan	Tier 2 Plan

Table O2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2045, *Without* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations					Tier 2 Drought Cutback
Consecutive Dry Year	1st	2nd	3rd	4th	5th	
ACWD	9.11	9.11	9.11	8.20	8.20	10.0%
Brisbane/GVMID	0.89	0.89	0.89	0.74	0.74	16.8%
Burlingame	4.69	4.69	4.69	4.02	4.02	14.3%
Coastside	1.33	1.33	1.33	1.19	1.19	10.0%
CalWater Total	30.70	30.70	30.70	26.73	26.73	12.9%
Daly City	3.43	3.43	3.43	3.01	3.01	12.4%
East Palo Alto	2.89	2.89	2.89	2.68	2.68	7.3%
Estero	4.38	4.38	4.38	3.94	3.94	10.0%
Hayward	22.14	22.14	22.14	18.67	18.67	15.7%
Hillsborough	3.26	3.26	3.26	2.93	2.93	10.2%
Menlo Park	4.29	4.29	4.29	3.58	3.58	16.5%
Mid-Peninsula	2.93	2.93	2.93	2.63	2.63	10.0%
Millbrae	3.20	3.20	3.20	2.54	2.54	20.7%
Milpitas	7.53	7.53	7.53	6.55	6.55	13.1%
Mountain View	9.93	9.93	9.93	8.91	8.91	10.3%
North Coast	2.34	2.34	2.34	2.11	2.11	10.0%
Palo Alto	10.79	10.79	10.79	9.71	9.71	10.0%
Purissima Hills	2.15	2.15	2.15	1.41	1.41	34.5%
Redwood City	8.90	8.90	8.90	7.92	7.92	11.1%
San Bruno	3.21	3.21	3.21	2.60	2.60	19.1%
San Jose	4.50	4.50	4.50	2.95	2.95	34.5%
Santa Clara	4.50	4.50	4.50	2.95	2.95	34.5%
Stanford	2.70	2.70	2.70	2.27	2.27	16.0%
Sunnyvale	12.10	12.10	12.10	10.11	10.11	16.5%
Westborough	0.84	0.84	0.84	0.76	0.76	10.0%
Total	**162.8**	**162.8**	**162.8**	**139.1**	**139.1**	

Attachment B: Updated 2020 UWMP Drought Cutbacks

The January 22, 2021, SFPUC Regional Water System (RWS) Supply Reliability Letter (Supply Reliability Letter) provides RWS supplies available to the Wholesale Customers under two scenarios: (1) With Bay-Delta Plan, and (2) Without Bay-Delta Plan. Your agency must choose which scenario to use for your agency's 2020 UWMP submittal tables. However, you may discuss both scenarios in the body of your agency's UWMP. The purpose of this attachment is to provide further detail about your agency's allocation of total RWS supplies available to the Wholesale Customers under both scenarios.

Data Sources for Projected RWS Purchases

Supply allocations are based on projected RWS purchases provided to BAWSCA by the Member Agencies. Following the completion of the Demand Study in June 2020, BAWSCA used the results to develop a table for each Member Agency listing possible supplies and total demand for 2025, 2030, 2035, 2040, and 2045. BAWSCA populated the tables with total demand after passive conservation and entered active conservation, as calculated in the agencies' DSS Model, as a source of supply. Multi-source agencies were asked to complete the table with supply projections, including from the RWS, to meet total demand. Single-source agencies were offered the opportunity to review the tables upon request. Because active conservation was treated as a source of supply, projected RWS purchases are after passive and active conservation.

Water Management Representatives (WMRs) received a draft copy of all projected wholesale RWS purchase requests as part of the January 7, 2021 WMR meeting agenda packet and meeting slides. Agencies were asked to notify BAWSCA if changes were necessary regarding their purchase requests prior to BAWSCA sending those purchase requests to the SFPUC. Purchase requests were transmitted to the SFPUC via a letter dated January 15, 2021 for use in their 2020 UWMP efforts.

Note that the projected RWS purchases used by BAWSCA for fiscal years 2020-21 and for 2021-22 were provided to Christina Tang, BAWSCA's Finance Manager, by each Member Agency in January 2021. This annual reporting is part of the SFPUC's wholesale rate setting process. Member Agencies have provided BAWSCA with these projected purchases annually for the past 10 years.

UWMP Tables 7-1 and 7-5

UWMP Table 7-1 requests supply reliability for a normal year, a single dry year, and multiple (five) dry years. Tables 3, 4, 5, and 6 provided in the Supply Reliability Letter will help your agency complete UWMP Table 7-1. The Drought Risk Assessment (DRA) in UWMP Table 7-5 also requests a five-year drought sequence but specifies years 2021 through 2025. Supply Reliability Letter Tables 9 and 10 will help your agency complete UWMP Table 7-5.

The Supply Reliability Letter provides four tables for completing UWMP Table 7-1. The Supply Reliability Letter Tables 3 (with Bay-Delta Plan) and 4 (without Bay-Delta Plan) use 2020 as the base year. Depending on which scenario you choose, these will be the basis for your agency's five-year DRA (UWMP Table 7-5). The Supply Reliability Letter Tables 5 (with Bay-Delta Plan) and 6 (without Bay-Delta Plan) use 2025 as the base year. Depending on which scenario you choose, these will be the basis for UWMP Tables 7-2 through 7-4. Your agency may submit multiple UWMP Tables 7-1 with different base years (see Figure 1 below).

Attachment B: Updated 2020 UWMP Drought Cutbacks

Figure 1: Footnote from Draft UWMP Table 7-1

Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

Total RWS supplies available to the Wholesale Customers in the first through fifth consecutive dry years in Supply Reliability Letter Table 3 align with those in Table 9 of the same letter. Similarly, Supply Reliability Letter Table 4 aligns with Table 10 of the same letter.

Table A below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Tables 7-1and 7-5.

Table A: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2020)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(1)	Projected SF RWS Wholesale Purchases	132.2 MGD	138.6 MGD	140.8 MGD	140.8 MGD	140.8 MGD	140.8 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases					
		2020	**2021**	**2022**	**2023**	**2024**	**2025**
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	0.0%	-4.4%	-5.9%	-5.9%	-5.9%	-5.9%
(5)	82.8 MGD	-37.4%	-40.3%	-41.2%	-41.2%	-41.2%	-41.2%
(6)	74.5 MGD	-43.7%	-46.3%	-47.1%	-47.1%	-47.1%	-47.1%

Table A, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative actual wholesale RWS purchases for 2020. In years when the Bay-Delta Plan is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. As such, RWS supply available to the Wholesale Customers in the 2021 and 2022 is equal to the cumulative projected wholesale RWS.. Projected RWS purchases for years 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January 2021. The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. Therefore, wholesale RWS demand in 2023 through 2025 is assumed to be static based on the 2022 projected demand.

Table B below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-1.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table B: Wholesale Customer Drought Cutbacks Based on a Single Dry Year and Multiple Dry Years (Base Year 2025)

	(a)	(b)	(c)	(d)	(e)	(f)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	146.0 MGD	146.0 MGD	146.0 MGD	146.0 MGD
(2)	Supply Available to the Wholesale Customers	Percent Cutback on Wholesale RWS Purchases				
		2025	**2026**	**2027**	**2028**	**2029**
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	0.0%
(4)	132.5 MGD	-9.2%	-9.2%	-9.2%	-9.2%	-9.2%
(5)	82.8 MGD	-43.3%	-43.3%	-43.3%	-43.3%	-43.3%
(6)	74.5 MGD	-49.0%	-49.0%	-49.0%	-49.0%	-49.0%

Table B, column (a), rows 3 through 6 lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025 through 2029. The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. Therefore, wholesale RWS demand is assumed to be static between 2025 and 2029 based on the 2025 projected demand.

To complete UWMP Tables 7-1 and 7-5, reference tables in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year of the drought sequence using Tables A and B. For example, in Supply Reliability Letter Table 3, in the 5th consecutive year of a drought, the volume available to the Wholesale Customers is 74.5 MGD. To calculate RWS supplies available to your agency in 2025 using table A, locate the row with 74.5 MGD on the table – row 6 – and the column for 2025 – column (g). Then apply the percent cutback to your agency's RWS demand in 2025.

A list of purchase projections by agency are provided in Tables C, D, E, and F. The table also indicates the percent cutback that should be applied based on total RWS supplies available to the Wholesale Customers. Tables C and E use Scenario 1: <u>With</u> Bay-Delta Plan. Tables D and F use Scenario 2: <u>Without</u> Bay-Delta Plan. Tables C and D use 2020 as the base year and Tables E and F use 2025 as the base year.

BAWSCA understands that agencies are updating projected demands for their 2020 UWMPs and that projected RWS purchases may change from what was previously provided. Additionally, BAWSCA recognizes that not all Member Agencies will choose the same scenario for their UWMP supply reliability tables. For both reasons, projected RWS purchases in each Member Agency's 2020 UWMP may not add up to total Wholesale demands in the SFPUC's 2020 UWMP. This is consistent with direction given by the Department of Water Resources, which encourages suppliers use the UWMP tables to represent what they believe to be the most likely supply reliability scenario and to characterize the five-consecutive year drought in a manner that is best suited for understanding and managing their water service reliability and individual agency level of risk tolerance.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table C: Scenario 1: With Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

	2020 (184 MGD)		**2021** (157.5 MGD)		**2022** (132.5 MGD)		**2023** (74.5 MGD)		**2024** (74.5 MGD)		**2025** (74.5 MGD)	
Agency	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	9.46	-47%	9.46	-47%	9.46	-47%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.65	-47%	0.65	-47%	0.65	-47%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.35	-47%	3.35	-47%	3.35	-47%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.23	-47%	1.23	-47%	1.23	-47%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.81	-47%	29.81	-47%	29.81	-47%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	4.01	-47%	4.01	-47%	4.01	-47%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.69	-47%	1.69	-47%	1.69	-47%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.51	-47%	4.51	-47%	4.51	-47%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	15.12	-47%	15.12	-47%	15.12	-47%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.05	-47%	3.05	-47%	3.05	-47%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	2.93	-47%	2.93	-47%	2.93	-47%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.80	-47%	2.80	-47%	2.80	-47%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.15	-47%	2.15	-47%	2.15	-47%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.34	-47%	5.34	-47%	5.34	-47%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.05	-47%	8.05	-47%	8.05	-47%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.66	-47%	2.66	-47%	2.66	-47%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.66	-47%	9.66	-47%	9.66	-47%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.02	-47%	2.02	-47%	2.02	-47%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	9.07	-47%	9.07	-47%	9.07	-47%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.40	-47%	3.40	-47%	3.40	-47%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-47%	4.51	-47%	4.51	-47%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.50	-47%	3.50	-47%	3.50	-47%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.54	-47%	1.54	-47%	1.54	-47%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.45	-47%	9.45	-47%	9.45	-47%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.81	-47%	0.81	-47%	0.81	-47%
Wholesale Total	**132.2**	**132.2†**	**138.6**	**138.6†**	**140.8**	**132.5†**	**140.8**	**74.5†**	**140.8**	**74.5†**	**140.8**	**74.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table D: Scenario 2: <u>Without</u> Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2020)

	2020 (184 MGD)		**2021** (157.5 MGD)		**2022** (132.5 MGD)		**2023** (132.5 MGD)		**2024** (132.5 MGD)		**2025** (132.5 MGD)	
Agency	Actual Purchases	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.87	0.0%	9.44	0.0%	9.46	-5.9%	9.46	-5.9%	9.46	-5.9%	9.46	-5.9%
Brisbane/GVMID	0.64	0.0%	0.62	0.0%	0.65	-5.9%	0.65	-5.9%	0.65	-5.9%	0.65	-5.9%
Burlingame	3.48	0.0%	3.34	0.0%	3.35	-5.9%	3.35	-5.9%	3.35	-5.9%	3.35	-5.9%
Coastside	1.02	0.0%	1.54	0.0%	1.23	-5.9%	1.23	-5.9%	1.23	-5.9%	1.23	-5.9%
CalWater Total	29.00	0.0%	29.66	0.0%	29.81	-5.9%	29.81	-5.9%	29.81	-5.9%	29.81	-5.9%
Daly City	3.97	0.0%	4.00	0.0%	4.01	-5.9%	4.01	-5.9%	4.01	-5.9%	4.01	-5.9%
East Palo Alto	1.57	0.0%	1.63	0.0%	1.69	-5.9%	1.69	-5.9%	1.69	-5.9%	1.69	-5.9%
Estero	4.34	0.0%	4.48	0.0%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%
Hayward	13.92	0.0%	14.47	0.0%	15.12	-5.9%	15.12	-5.9%	15.12	-5.9%	15.12	-5.9%
Hillsborough	2.62	0.0%	2.95	0.0%	3.05	-5.9%	3.05	-5.9%	3.05	-5.9%	3.05	-5.9%
Menlo Park	2.96	0.0%	2.92	0.0%	2.93	-5.9%	2.93	-5.9%	2.93	-5.9%	2.93	-5.9%
Mid-Peninsula	2.66	0.0%	2.65	0.0%	2.80	-5.9%	2.80	-5.9%	2.80	-5.9%	2.80	-5.9%
Millbrae	1.90	0.0%	1.95	0.0%	2.15	-5.9%	2.15	-5.9%	2.15	-5.9%	2.15	-5.9%
Milpitas	5.92	0.0%	5.88	0.0%	5.34	-5.9%	5.34	-5.9%	5.34	-5.9%	5.34	-5.9%
Mountain View	7.67	0.0%	7.80	0.0%	8.05	-5.9%	8.05	-5.9%	8.05	-5.9%	8.05	-5.9%
North Coast	2.37	0.0%	2.58	0.0%	2.66	-5.9%	2.66	-5.9%	2.66	-5.9%	2.66	-5.9%
Palo Alto	9.75	0.0%	9.44	0.0%	9.66	-5.9%	9.66	-5.9%	9.66	-5.9%	9.66	-5.9%
Purissima Hills	1.75	0.0%	1.97	0.0%	2.02	-5.9%	2.02	-5.9%	2.02	-5.9%	2.02	-5.9%
Redwood City	8.76	0.0%	8.72	0.0%	9.07	-5.9%	9.07	-5.9%	9.07	-5.9%	9.07	-5.9%
San Bruno	0.95	0.0%	3.39	0.0%	3.40	-5.9%	3.40	-5.9%	3.40	-5.9%	3.40	-5.9%
San José	4.26	0.0%	4.31	0.0%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%	4.51	-5.9%
Santa Clara	3.27	0.0%	3.29	0.0%	3.50	-5.9%	3.50	-5.9%	3.50	-5.9%	3.50	-5.9%
Stanford	1.43	0.0%	1.40	0.0%	1.54	-5.9%	1.54	-5.9%	1.54	-5.9%	1.54	-5.9%
Sunnyvale	9.33	0.0%	9.35	0.0%	9.45	-5.9%	9.45	-5.9%	9.45	-5.9%	9.45	-5.9%
Westborough	0.82	0.0%	0.84	0.0%	0.81	-5.9%	0.81	-5.9%	0.81	-5.9%	0.81	-5.9%
Wholesale Total	**132.2**	**132.2†**	**138.6**	**138.6†**	**140.8**	**132.5†**	**140.8**	**132.5†**	**140.8**	**132.5†**	**140.8**	**132.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table E: Scenario 1: <u>With</u> Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

	2025 (184 MGD)		**2026** (82.8 MGD)		**2027** (74.5 MGD)		**2028** (74.5 MGD)		**2029** (74.5 MGD)	
Agency	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0%	7.68	-43.3%	7.68	-49%	7.68	-49%	7.68	-49%
Brisbane/GVMID	0.89	0%	0.89	-43.3%	0.89	-49%	0.89	-49%	0.89	-49%
Burlingame	4.33	0%	4.33	-43.3%	4.33	-49%	4.33	-49%	4.33	-49%
Coastside	1.40	0%	1.40	-43.3%	1.40	-49%	1.40	-49%	1.40	-49%
CalWater Total	29.99	0%	29.99	-43.3%	29.99	-49%	29.99	-49%	29.99	-49%
Daly City	3.57	0%	3.57	-43.3%	3.57	-49%	3.57	-49%	3.57	-49%
East Palo Alto	1.88	0%	1.88	-43.3%	1.88	-49%	1.88	-49%	1.88	-49%
Estero	4.07	0%	4.07	-43.3%	4.07	-49%	4.07	-49%	4.07	-49%
Hayward	17.86	0%	17.86	-43.3%	17.86	-49%	17.86	-49%	17.86	-49%
Hillsborough	3.26	0%	3.26	-43.3%	3.26	-49%	3.26	-49%	3.26	-49%
Menlo Park	3.55	0%	3.55	-43.3%	3.55	-49%	3.55	-49%	3.55	-49%
Mid-Peninsula	2.86	0%	2.86	-43.3%	2.86	-49%	2.86	-49%	2.86	-49%
Millbrae	2.29	0%	2.29	-43.3%	2.29	-49%	2.29	-49%	2.29	-49%
Milpitas	6.59	0%	6.59	-43.3%	6.59	-49%	6.59	-49%	6.59	-49%
Mountain View	8.60	0%	8.60	-43.3%	8.60	-49%	8.60	-49%	8.60	-49%
North Coast	2.34	0%	2.34	-43.3%	2.34	-49%	2.34	-49%	2.34	-49%
Palo Alto	10.06	0%	10.06	-43.3%	10.06	-49%	10.06	-49%	10.06	-49%
Purissima Hills	2.09	0%	2.09	-43.3%	2.09	-49%	2.09	-49%	2.09	-49%
Redwood City	8.46	0%	8.46	-43.3%	8.46	-49%	8.46	-49%	8.46	-49%
San Bruno	3.24	0%	3.24	-43.3%	3.24	-49%	3.24	-49%	3.24	-49%
San José	4.50	0%	4.50	-43.3%	4.50	-49%	4.50	-49%	4.50	-49%
Santa Clara	4.50	0%	4.50	-43.3%	4.50	-49%	4.50	-49%	4.50	-49%
Stanford	2.01	0%	2.01	-43.3%	2.01	-49%	2.01	-49%	2.01	-49%
Sunnyvale	9.16	0%	9.16	-43.3%	9.16	-49%	9.16	-49%	9.16	-49%
Westborough	0.86	0%	0.86	-43.3%	0.86	-49%	0.86	-49%	0.86	-49%
Wholesale Total	**146.0**	**146.0†**	**146.0**	**82.8†**	**146.0**	**74.5†**	**146.0**	**74.5†**	**146.0**	**74.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table F: Scenario 2: <u>Without</u> Bay-Delta Plan - Projected Wholesale Customer RWS Demand and Percent Cutback for a Single Dry Year and Multiple Dry Years (Base Year 2025)

	2025 (184 MGD)		**2026** (157.5 MGD)		**2027** (157.5 MGD)		**2028** (157.5 MGD)		**2029** (132.5 MGD)	
Agency	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback	Projected Demand	Drought Cutback
ACWD	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	0.0%	7.68	-9.2%
Brisbane/GVMID	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	0.0%	0.89	-9.2%
Burlingame	4.33	0.0%	4.33	0.0%	4.33	0.0%	4.33	0.0%	4.33	-9.2%
Coastside	1.40	0.0%	1.40	0.0%	1.40	0.0%	1.40	0.0%	1.40	-9.2%
CalWater Total	29.99	0.0%	29.99	0.0%	29.99	0.0%	29.99	0.0%	29.99	-9.2%
Daly City	3.57	0.0%	3.57	0.0%	3.57	0.0%	3.57	0.0%	3.57	-9.2%
East Palo Alto	1.88	0.0%	1.88	0.0%	1.88	0.0%	1.88	0.0%	1.88	-9.2%
Estero	4.07	0.0%	4.07	0.0%	4.07	0.0%	4.07	0.0%	4.07	-9.2%
Hayward	17.86	0.0%	17.86	0.0%	17.86	0.0%	17.86	0.0%	17.86	-9.2%
Hillsborough	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	0.0%	3.26	-9.2%
Menlo Park	3.55	0.0%	3.55	0.0%	3.55	0.0%	3.55	0.0%	3.55	-9.2%
Mid-Peninsula	2.86	0.0%	2.86	0.0%	2.86	0.0%	2.86	0.0%	2.86	-9.2%
Millbrae	2.29	0.0%	2.29	0.0%	2.29	0.0%	2.29	0.0%	2.29	-9.2%
Milpitas	6.59	0.0%	6.59	0.0%	6.59	0.0%	6.59	0.0%	6.59	-9.2%
Mountain View	8.60	0.0%	8.60	0.0%	8.60	0.0%	8.60	0.0%	8.60	-9.2%
North Coast	2.34	0.0%	2.34	0.0%	2.34	0.0%	2.34	0.0%	2.34	-9.2%
Palo Alto	10.06	0.0%	10.06	0.0%	10.06	0.0%	10.06	0.0%	10.06	-9.2%
Purissima Hills	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	0.0%	2.09	-9.2%
Redwood City	8.46	0.0%	8.46	0.0%	8.46	0.0%	8.46	0.0%	8.46	-9.2%
San Bruno	3.24	0.0%	3.24	0.0%	3.24	0.0%	3.24	0.0%	3.24	-9.2%
San José	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-9.2%
Santa Clara	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	0.0%	4.50	-9.2%
Stanford	2.01	0.0%	2.01	0.0%	2.01	0.0%	2.01	0.0%	2.01	-9.2%
Sunnyvale	9.16	0.0%	9.16	0.0%	9.16	0.0%	9.16	0.0%	9.16	-9.2%
Westborough	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.86	0.0%	0.86	-9.2%
Wholesale Total	**146.0**	**146.0†**	**146.0**	**146.4†**	**146.0**	**146.8†**	**146.0**	**147.1†**	**146.0**	**132.5†**

† Total supply available to the Wholesale Customers after drought cutback.

Attachment B: Updated 2020 UWMP Drought Cutbacks

<u>UWMP Table 7-4</u>

Supply Reliability Letter Tables 7 and 8 will help your agency complete UWMP Table 7-4. Table G below provides a summary of the Member Agencies' RWS supply drought cutbacks under each of the four supply availability conditions and is intended to help you complete UWMP Table 7-4. The table assumes (1) the Tier 2 Plan will be used to allocate supplies available to the Wholesale Customers when average Wholesale Customers' RWS shortages are greater than 10 and up to 20 percent, and (2) an equal percent reduction will be shared across all Wholesale Customers when average Wholesale Customers' RWS shortages are 10 percent or less or greater than 20 percent.

Table G: Drought Cutbacks Based on Projected Demands Under All Water Supply Availability Conditions

	(a)	(b)	(c)	(d)	(e)	(f)
(1)	Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
(2)	Supply Available to the Wholesale Customers	% Cutback on Wholesale RWS Purchases				
		2025	**2030**	**2035**	**2040**	**2045**
(3)	157.5 MGD	0.0%	0.0%	0.0%	0.0%	-3.2%
(4)	132.5 MGD	-9.3%	-10.4%	Tier 2 Avg. -14%*	Tier 2 Avg. -16%*	Tier 2 Avg. -19%*
(5)	82.8 MGD	-43.3%	-44.0%	-45.5%	-47.0%	-49.1%
(6)	74.5 MGD	-49.0%	-49.6%	-51.0%	-52.3%	-54.2%

* Calculated average. Individual agency cutbacks are calculated in Table H.

Table G, column (a) lists total RWS supplies available to the Wholesale Customers as provided in the Supply Reliability Letter tables. Row 1 provides cumulative projected wholesale RWS purchases for 2025, 2030, 2035, 2040, and 2045.

Tables H, I, J and K provide additional detail by agency for each of the four supply availability conditions listed in Table G. To complete UWMP Table 7-4, reference Table 7 or 8 (depending on which Bay-Delta Plan scenario you choose) in the Supply Reliability Letter to identify total RWS supplies available to the Wholesale Customers and apply the percent cutback in the corresponding year using Table G or input the volumetric drought allocation using Tables H, I, J and K below.

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table H: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 157.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2035**	**2040**	**2045**
ACWD	7.68	7.68	7.68	7.68	8.82
Brisbane/GVMID	0.89	0.89	0.88	0.89	0.87
Burlingame	4.33	4.40	4.47	4.58	4.54
Coastside	1.40	1.38	1.36	1.33	1.28
CalWater Total	29.99	29.74	29.81	30.27	29.71
Daly City	3.57	3.52	3.49	3.46	3.32
East Palo Alto	1.88	1.95	2.10	2.49	2.80
Estero	4.07	4.11	4.18	4.23	4.24
Hayward	17.86	18.68	19.75	20.82	21.43
Hillsborough	3.26	3.25	3.26	3.26	3.15
Menlo Park	3.55	3.68	3.87	4.06	4.15
Mid-Peninsula	2.86	2.84	2.88	2.89	2.83
Millbrae	2.29	2.50	2.45	2.82	3.10
Milpitas	6.59	6.75	7.03	7.27	7.29
Mountain View	8.60	8.90	9.20	9.51	9.61
North Coast	2.34	2.33	2.34	2.34	2.27
Palo Alto	10.06	10.15	10.28	10.51	10.44
Purissima Hills	2.09	2.09	2.12	2.13	2.08
Redwood City	8.46	8.49	8.64	8.74	8.62
San Bruno	3.24	3.22	3.20	3.20	3.11
San José	4.50	4.50	4.50	4.50	4.35
Santa Clara	4.50	4.50	4.50	4.50	4.35
Stanford	2.01	2.18	2.35	2.53	2.61
Sunnyvale	9.16	9.30	10.70	11.44	11.71
Westborough	0.86	0.85	0.85	0.84	0.82
Wholesale Total	**146.0**	**147.9**	**151.9**	**156.3**	**157.5**

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table I: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 132.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2035**	**2040**	**2045**
ACWD	6.97	6.88	6.91	6.91	8.20
Brisbane/GVMID	0.81	0.79	0.73	0.73	0.72
Burlingame	3.93	3.94	3.96	3.89	3.80
Coastside	1.27	1.24	1.22	1.20	1.19
CalWater Total	27.21	26.65	26.46	25.69	24.69
Daly City	3.24	3.15	3.04	3.01	2.98
East Palo Alto	1.70	1.75	1.97	2.30	2.62
Estero	3.69	3.68	3.76	3.87	3.77
Hayward	16.20	16.74	17.32	17.69	18.07
Hillsborough	2.96	2.92	2.90	2.75	2.56
Menlo Park	3.22	3.30	3.37	3.33	3.26
Mid-Peninsula	2.59	2.54	2.59	2.62	2.54
Millbrae	2.07	2.24	2.16	2.32	2.45
Milpitas	5.98	6.05	6.25	6.31	6.35
Mountain View	7.80	7.97	8.28	8.49	8.34
North Coast	2.12	2.09	2.11	2.11	2.11
Palo Alto	9.13	9.09	9.26	9.46	9.71
Purissima Hills	1.89	1.87	1.42	1.38	1.32
Redwood City	7.67	7.61	7.89	7.70	7.49
San Bruno	2.94	2.88	2.56	2.51	2.45
San José	4.08	4.03	3.03	2.91	2.76
Santa Clara	4.08	4.03	3.03	2.91	2.76
Stanford	1.82	1.95	2.06	2.13	2.16
Sunnyvale	8.31	8.33	9.46	9.51	9.43
Westborough	0.78	0.76	0.76	0.76	0.76
Wholesale Total	**132.5**	**132.5**	**132.5**	**132.5**	**132.5**

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table J: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 82.8 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2035**	**2040**	**2045**
ACWD	4.36	4.30	4.19	4.07	4.64
Brisbane/GVMID	0.51	0.50	0.48	0.47	0.45
Burlingame	2.45	2.46	2.44	2.43	2.39
Coastside	0.79	0.77	0.74	0.71	0.68
CalWater Total	17.00	16.65	16.25	16.03	15.62
Daly City	2.02	1.97	1.90	1.83	1.75
East Palo Alto	1.06	1.09	1.14	1.32	1.47
Estero	2.31	2.30	2.28	2.24	2.23
Hayward	10.13	10.46	10.77	11.03	11.26
Hillsborough	1.85	1.82	1.78	1.73	1.66
Menlo Park	2.01	2.06	2.11	2.15	2.18
Mid-Peninsula	1.62	1.59	1.57	1.53	1.49
Millbrae	1.30	1.40	1.34	1.49	1.63
Milpitas	3.74	3.78	3.83	3.85	3.83
Mountain View	4.88	4.98	5.01	5.04	5.05
North Coast	1.33	1.30	1.28	1.24	1.19
Palo Alto	5.71	5.68	5.61	5.57	5.49
Purissima Hills	1.18	1.17	1.15	1.13	1.10
Redwood City	4.80	4.76	4.71	4.63	4.53
San Bruno	1.83	1.80	1.75	1.70	1.63
San José	2.55	2.52	2.45	2.38	2.29
Santa Clara	2.55	2.52	2.45	2.38	2.29
Stanford	1.14	1.22	1.28	1.34	1.37
Sunnyvale	5.19	5.21	5.83	6.06	6.16
Westborough	0.49	0.48	0.46	0.45	0.43
Wholesale Total	**82.8**	**82.8**	**82.8**	**82.8**	**82.8**

Attachment B: Updated 2020 UWMP Drought Cutbacks

Table K: Drought Allocations when Total Supplies Available to the Wholesale Customers are Equal to 74.5 MGD

Projected SF RWS Wholesale Purchases	146.0 MGD	147.9 MGD	151.9 MGD	156.3 MGD	162.8 MGD
	Drought Allocation (MGD)				
Agency	**2025**	**2030**	**2035**	**2040**	**2045**
ACWD	3.92	3.87	3.77	3.66	4.17
Brisbane/GVMID	0.46	0.45	0.43	0.42	0.41
Burlingame	2.21	2.21	2.19	2.18	2.15
Coastside	0.71	0.70	0.67	0.64	0.61
CalWater Total	15.30	14.98	14.62	14.43	14.05
Daly City	1.82	1.77	1.71	1.65	1.57
East Palo Alto	0.96	0.98	1.03	1.19	1.32
Estero	2.08	2.07	2.05	2.02	2.00
Hayward	9.11	9.41	9.69	9.92	10.14
Hillsborough	1.66	1.64	1.60	1.55	1.49
Menlo Park	1.81	1.86	1.90	1.94	1.96
Mid-Peninsula	1.46	1.43	1.41	1.38	1.34
Millbrae	1.17	1.26	1.20	1.34	1.47
Milpitas	3.36	3.40	3.45	3.47	3.45
Mountain View	4.39	4.48	4.51	4.53	4.54
North Coast	1.19	1.17	1.15	1.12	1.07
Palo Alto	5.14	5.11	5.04	5.01	4.94
Purissima Hills	1.06	1.05	1.04	1.02	0.99
Redwood City	4.31	4.28	4.24	4.17	4.08
San Bruno	1.65	1.62	1.57	1.53	1.47
San José	2.30	2.27	2.21	2.14	2.06
Santa Clara	2.30	2.27	2.21	2.14	2.06
Stanford	1.03	1.10	1.15	1.21	1.24
Sunnyvale	4.67	4.69	5.25	5.45	5.54
Westborough	0.44	0.43	0.41	0.40	0.39
Wholesale Total	**74.5**	**74.5**	**74.5**	**74.5**	**74.5**

Appendix H

Consumer Confidence Report (2019)

2019 Annual

Water Quality Report

City of East Palo Alto
PWS ID: CA4110024

AMERICAN WATER

This report contains important information about your drinking water. If you do not understand it, please have someone explain or translate it for you.

Este informe contiene información muy importante sobre su agua potable. Si no lo comprende, favor acudir a alguien que se lo pueda traducir o explicar.

The City of East Palo Alto and American Water Message

The City of East Palo Alto's water system is under a 25-year agreement with American Water. In this agreement with the City of East Palo Alto, American Water provides all operations and maintenance works for the system. American Water reads all meters, provides customer service and billing, and payment collection. With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 7,100 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to more than 14 million people in 46 states. More information can be found by visiting www.amwater.com.

As a trusted leader in the industry, American Water places a strong emphasis on sharing water quality information with our customers.

The customers of the City of East Palo Alto and American Water are our top priority, and we are committed to providing them with the highest quality drinking water and service possible now and in the years to come. In addition to this report, you can view information about your water system at www.ci.east-palo-alto.ca.us.

Please review this Consumer Confidence Report, which outlines information applicable to your local water system for testing completed between January 2019 through December 2019.

The web sites of United States Environmental Protection Agency's (USEPA)Office of Water, the Centers for Disease Control and Prevention (CDC), and California State Water Resources Control Board (SWRCB) provide a substantial amount of information on many issues relating to water resources, water conservation and public health.

How to Contact Us

For more information about the contents of this report, please contact the American Water Project Manager at (650) 322-2083 or visit us online at http://www.ci.east-palo-alto.ca.us/.

Water quality policies are decided at public hearings held at the East Palo Alto Government Center 2415 University Ave- First Floor- City Council Chamber. For more information, visit http://www.ci.east-palo-alto.ca.us/. Water Quality: Contaminants and Regulations

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 from human activity. Such substances are called contaminants. 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.

In order to ensure that tap water is safe to drink, the USEPA and SWRCB's Division of Drinking Water (DDW) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish limits for contaminants in bottled water that provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791.

Special Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people 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 about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline 800-426-4791 or at www.epa.gov/safewater.

Water Information Sources

The City of East Palo Alto is supplied water by the San Francisco Regional Water System (SFRWS), which is owned and operated by the San Francisco Public Utilities Commission (SFPUC). Its major water source originates from spring snowmelt flowing down the Tuolumne River to storage in Hetch Hetchy Reservoir. The well protected Sierra water source is exempt from filtration requirements by the USEPA and SWRCB-DDW. Water from the Hetch Hetchy reservoir receives the following treatment to meet appropriate drinking water standards: disinfection by ultraviolet light and chlorine, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation.

Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the 35,000-acre Alameda Watershed in Alameda and Santa Clara counties are collected in the Calaveras and San Antonio reservoirs and delivered to the Sunol Valley Water Treatment Plant (SVWTP). Rainfall and runoff from the 23,000-acre Peninsula Watershed in San Mateo County are stored in the Crystal Springs, San Andreas and Pilarcitos reservoirs, and are delivered to the Harry Tracy Water Treatment Plant. In addition to these local sources, the SWRCB-DDW approved the SFPUC to use the surface water in Lake Eleanor, Lake Cherry and the associated creeks all conveyed via the Lower Cherry Aqueduct, Early Intake Reservoir and Tuolumne River (collectively known as Upcountry Non-Hetch Hetchy Sources, or UNHHS) as additional drinking water sources to the SFRWS. The UNHHS water, if used, will be treated at the SVWTP prior to service to customers. In 2016, the SFRWS did not use UNHHS. Water at the two local treatment plants is subject to filtration, disinfection, fluoridation, and pH adjustment for corrosion control optimization.

Protecting Our Watersheds

The SFPUC conducts watershed sanitary surveys for the Hetch Hetchy source annually and local water sources every five years. The last local sanitary survey was done in 2016. The SFPUC conducted a special watershed sanitary survey for UNHHS in 2015 as part of its drought response plan efforts. These surveys evaluate the sanitary condition, water quality, potential contamination sources and the results of watershed management activities and were completed with support from partner agencies including National Park Service and US Forest Service.

These surveys identified wildlife, stock, and human activities as potential contamination sources. You may contact the San Francisco District office of SWRCB-DDW at 510-620-3474 to review these reports.

What is a Water Quality Report?

To comply with SWRCB and USEPA regulations, American Water issues a report annually describing the quality of your drinking water. The purpose of this report is to provide you an overview of last year's (2016) drinking water quality. It includes details about where your water comes from and what it contains. We hope the report will raise your understanding of drinking water issues and awareness of the need to protect your drinking water sources. For more information, please contact the Project Manager at (650) 322-2083

You may visit these sites as well as American Water's website at the following addresses:

Centers for Disease Control and Prevention
www.cdc.gov

California State Water Resource Control Board

http://www.waterboards.ca.gov/drinking_water/programs/index.shtml

United States Environmental Protection Agency
www.epa.gov/safewater

American Water
www.amwater.com

American Water Works Association
www.awwa.org

Safe Drinking Water Hotline: (800) 426-4791

How is Your Water Treated?

You water receives the following treatment to meet appropriate drinking water standards: disinfection by ultraviolet light and chlorine, filtration, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation.

Share This Report

Landlords, businesses, schools, hospitals and other groups are encouraged to share this important information with water users at their location who are not billed customers of the City of East Palo Alto and therefore do not receive this report directly.

Fluoridation and Dental Fluorosis

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. The SFPUC's fluoride target level in the water is 0.7 milligram per liter, consistent with the May 2015 State regulatory guidance on optimal fluoride level. Infants fed formula mixed with water containing fluoride at this level may still have a chance of developing tiny white lines or streaks in their teeth. These marks are referred to as mild to very mild fluorosis and are often only visible under a microscope. Even in cases where the marks are visible, they do not pose any health risk. The CDC considers it safe to use optimally fluoridated water for preparing infant formula. To lessen this chance of dental fluorosis, you may choose to use low fluoride bottled water to prepare infant formula. Nevertheless, children may still develop dental fluorosis due to fluoride intake from other sources such as food, toothpaste and dental products.

Contact your health provider or SWRCB-DDW if you have concerns about dental fluorosis. For additional information about fluoridation or oral health, visit the CDC website www.cdc.gov/fluoridation or SWRCB-DDW website www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

Water Conservation Alert & Tips

Following another historically dry winter, we continue to ask all customers to voluntarily reduce water usage. Also in accordance with the State of California emergency water restrictions, voluntary reductions in outdoor irrigation of ornamental landscape and turf are still in place.

Conservation measures you can use inside your home include:

- Fix leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets and appliances.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Do not let the water run while shaving or brushing teeth.
- Soak dishes before washing.
- Run the dishwasher only when full.

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water-saving nozzles.
- Use water from a bucket to wash your car, and save the hose for rinsing

Cryptosporidium

Cryptosporidium is a single cell microbial organism found in surface water throughout the US. During its life cycle it matures into resistant cells called oocysts that can be shed in feces. The disease caused by *Cryptosporidium* is called Cryptosporidiosis and is caused by infection with oocysts. People can be exposed to oocysts from other people, animals, water, swimming pools, fresh food, soils, and any surface that has not been sanitized after exposure to feces. Symptoms range from a mild to incapacitating diarrhea, cramps, loss of appetite, weight loss, nausea, and low-grade fever.

Cryptosporidium can be removed through commonly used filtration methods; US EPA issued a new rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. The EPA created this rule (Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) to provide for increased protection against microbial pathogens, such as *Cryptosporidium*, in public water systems that use surface water sources.

Substances Expected to be in Drinking Water

Generally, the sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, 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 from human activity. Such substances are called contaminants, and may be present in source water as:

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

Inorganic contaminants, such as salts and metals, that 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 that 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 by-products 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 be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791, or at www.epa.gov/safewater.

Information about Lead

Is there lead in my water?

Although we regularly test lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. If present, elevated levels of lead can cause serious 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. The City of East Palo Alto is responsible for providing high quality drinking water 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 and copper exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. You can also use cold water for cooking, drinking, or making baby formula; use low lead containing faucets; and when replacing or working on pipes, use lead-free solder. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the National Lead Information Center (800-LEAD-FYI) or the EPA Safe Drinking Water Hotline at 1-800-426-4791 or at http://www.epa.gov/safewater/lead.

How to Read the Data Tables

The City of East Palo Alto conducts extensive monitoring to ensure that your water meets all water quality standards. The results of our monitoring are reported in the following tables. While most monitoring was conducted in 2016, certain substances are required to be monitored less than once per year and represent the most current results available. For help with interpreting this table, see the “Table Definitions” section.

Starting with **Detected Contaminants**, please read across:
Year Sampled is usually in 2016 or year prior
MCL shows the highest level of substance (contaminant) allowed.
MCLG is the goal level for that substance (this may be lower than what is allowed).
Average Amount Detected represents the measured amount (less is better).
Range tells the highest and lowest amounts measured.
A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements.
Typical Source tells where the substance usually originates.
Unregulated substances are measured, but maximum allowed contaminant levels have not been established by the government.

Table Definitions and Abbreviations

Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
BPQL (Below Practical Quantitative Limit): Below the minimum concentration of a substance can be measured and reported with 99 percent confidence that the true value is greater than zero.
MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MRDL (Maximum Residual Disinfectant Level): The highest level of disinfectant routinely allowed in drinking water. Addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG (Maximum Residual Disinfectant Level Goal): The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
mrem/year: Millirems per year (a measure of radiation absorbed by the body).
NA: Not applicable.
ND: Not detected.
NTU - Nephelometric Turbidity Units: Measurement of the clarity, or turbidity, of water.
Turbidity - A water clarity indicator that measures cloudiness of the water and is used to indicate the effectiveness of the filtration system. High turbidity can hinder the effectiveness of disinfectants.
pCi/L (picocuries per liter): Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).
pH: A measurement of acidity, 7.0 being neutral.
PHG: the level of a chemical contaminant in drinking water that does not pose a significant risk to health. PHGs are not regulatory standards.
ppm (parts per million): One-part substance per million parts water, or milligrams per liter.
ppb (parts per billion): One-part substance per billion parts water, or micrograms per liter.
ppt (parts per trillion): One-part substance per trillion parts water, or nanograms per liter.
TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

Water Quality Statement

The City of East Palo Alto is required to sample for many different contaminants in your drinking water annually. The tables below only contain sample results for contaminants that were detected in your drinking water. Some contaminants are required to be sampled for less than annually and in these cases, the most recent sample results are provided below and the year they were collected.

REGULATED CONTAMINANTS FROM SAN FRANCISCO PUBLIC UTILITIES COMMISSION (PURCHASED WATER)

Detected Contaminants	YEAR	UNIT	MCL	PHG OR (MCLG)	Range or Level Found	Average OR [Max]	Major Sources in Drinking Water
TURBIDITY							
Unfiltered Hetch Hetchy Water	2019	NTU	5	N/A	0.3- 0.7 (2)	[2.1]	Soil Runoff

Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	2019	NTU	1[2] Min 95% of samples ≤ 0.3 NTU[2]	N/A	- 99.89% - 100%	[1] -	Soil Runoff
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	2019	NTU	1[2] Min 95% of samples ≤ 0.3 NTU[2]	N/A	- 100%	[0.1] -	Soil Runoff
DISINFECTANT BYPRODUCTS AND PRECURSOR							
Total Organic Carbon[3]	2019	ppm	TT	N/A	1..6 – 2.6	2.2	Various natural and man-made sources
Total Trihalomethanes	2019	ppb	80	N/A	18.4 – 57.1	42.9	Byproduct of drinking water disinfection
Chloramines	2019	ppm	MRDL = 4.0	MRDLG = 4.0	2.78 – 3.07	2.84	Byproduct of drinking water disinfection
MICROBIOLOGICAL							
Giardia lamblia	2019	cyst/L	TT	(0)	0 – 0.09	0.02	Naturally present in the environment
INORGANICS							
Fluoride (source water)[4]	2019	ppm	2.0	1	ND – 0.09	0.3[5]	Erosion of natural deposits; water additive to promote strong teeth

1. These are monthly average turbidity values measured every 4 hours daily
2. There is no turbidity MCL for filtered water. The limits are based on the TT requirements for filtration systems.
3. Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.
4. In May 2015, the SWRCB recommended an optimal fluoride level of 0.7 ppm be maintained in the treated water. In 2016, the range and average of the fluoride levels were 0.5 ppm - 0.8 ppm and 0.6 ppm, respectively.
5. The natural fluoride level in the Hetch Hetchy supply was ND. Elevated fluoride levels in the SVWTP and HTWTP raw water are attributed to the transfer of fluoridated Hetch Hetchy water into the local reservoirs.

CONSTITUENTS WITH SECONDARY STANDARDS							
	YEAR	UNIT	SMCL	PHG	Range	Average	Major Sources of Contaminant
Chloride	2019	ppm	500	N/A	<3 - 17	8.7	Runoff / leaching from natural deposits
Color	2019	unit	15	N/A	<5 -10	<5	Naturally occurring organic materials
Specific Conductance	2019	µS/cm	1600	N/A	32 - 234	158	Substances that form ions when in water
Sulfate	2019	ppm	500	N/A	1 – 2.9	15	Runoff / leaching from natural deposits
Total Dissolved Solids	2019	ppm	1000	N/A	<20 - 119	76	Runoff / leaching from natural deposits
Turbidity	2019	NTU	5	N/A	ND - 0.5	0.2	Soil runoff

OTHER WATER QUALITY PARAMETERS					
	YEAR	UNIT	ORL	Range	Average
Alkalinity (as $CaCO_3$)	2019	ppm	N/A	3.5-97	46
Boron	2019	ppb	1000 (NL)	ND – 107	ND
Bromide	2016	ppb	N/A	<5 – 27	7
Calcium (as Ca)	2019	ppm	N/A	3.3 - 20	12
Chlorate[7]	2019	ppb	800 (NL)	40 - 220	84
Chromium VI	2019	ppb	-	0.04 – 0.19	0.12
Hardness (as $CaCO_3$)	2019	ppm	N/A	8.9 - 77	47
Magnesium	2019	ppm	N/A	0.2 – 6.6	4.2
pH	2019	-	N/A	8.8 – 10.1	9.3
Phosphate (Ortho)	2016	ppm	N/A	<0.03 – 0.11	0.04
Potassium	2019	ppm	N/A	0.3 – 1.2	0.8
Silica	2019	ppm	N/A	4.9 - 8	6.1
Sodium	2019	ppm	N/A	2.8 - 21	14
Strontium	2019	ppb	N/A	12 - 230	107

7. The detected chlorate in the treated water is a degradation product of sodium hypochlorite used by the SFPUC for water disinfection.

REGULATED CONTAMINANTS FROM THE CITY OF EAST PALO ALTO DISTRIBUTION SYSTEM

Substance (units)	Year Sampled	UNIT	MCL	PHG OR (MCLG)	Range OR Level Found	Average OR Max	Major Sources of Contaminant
DISINFECTANT AND DISINFECTION BY-PRODUCTS							
Total Trihalomethanes	2019	ppb	80	<40	18.4 – 57.1	45.3 avg	Byproduct of drinking water disinfection
Haloacetic Acids	2019	ppb	60	N/A	7.7 – 37	27 avg	Byproduct of drinking water disinfection
Chloramines	2019	ppm	MRDL = 4.0	MRDLG = 4.0	2.78 – 3.07	2.84 avg	Drinking water disinfectant added for treatment

MICROBIOLOGICAL CONTAMINANTS

Substance (units)	Year Sampled	UNIT	MCL	MCLG	Tested Positive	Typical Source
Coliform, Total	2019	-	No more than 1 positive monthly sample.	0	0	Naturally present in the environment

LEAD AND COPPER

Substance (units)	Year Sampled	UNIT	AL	PHG	90th Percentile	Sites Above AL	Typical Source
Lead	2017	ppb	.015	0.2	0	0	Corrosion of household plumbing; Erosion of natural deposits
Copper	2017	ppm	1.3	0.3	0.041	0	Corrosion of household plumbing; Erosion of natural deposits

REGULATED SECONDARY CONTAMINANTS FROM THE CITY OF EAST PALO ALTO TREATED GROUNDWATER

Substance (units)	Year Sampled	UNIT	MCL	PHG OR (MCLG)	Range OR Level Found	Average OR Max	Major Sources of Contaminant
Total Dissolved Solids	2019	ppm	1000	N/A	270 - 380	380 max	Runoff / leaching from natural deposits
Chloride	2019	ppm	500	N/A	110 - 120	120 max	Runoff / leaching from natural deposits
Iron	2019	ppm	0.3	0.15	ND – 0.014	0.014 max	Erosion of natural deposits
Manganese	2019	ppm	0.05	0.0025	ND – 0.002	0.002 max	Erosion of natural deposits
Color	2019	CU	15	N/A	ND - <5	<5 max	Erosion of manmade/natural deposits
Odor	2019	TON	3	N/A	<1	<1 max	Erosion of manmade/natural deposits
Turbidity	2019	NTU	5	N/A	<0.10 – .28	0.28 max	Erosion of manmade/natural deposits

UNREGULATED CONTAMINANTS MONITORING RULE (UCMR4) FROM THE CITY OF EAST PALO ALTO

Substance (units)	Year Sampled	UNIT	Highest Level Detected	PHG OR (MCLG)	Range OR Level Found	Average OR Max	Typical Sources of Contaminant
Dichloroacetic Acid	2019	ug/L	8.5	N/A	.2 – 8.5	8.225 avg	By-product / drinking water disinfection
Trichloroacetic Acid	2019	ug/L	10	N/A	.5 - 10	9.875 avg	By-product / drinking water disinfection
Total Haloacetic Acid	2019	ug/L	19	N/A	.2 - 19	18.5 avg	By-product / drinking water disinfection
Total Haloacetic Acid UCMR4	2019	ug/L	19	N/A	.2 - 19	18.5 avg	By-product / drinking water disinfection
Total Haloacetic Acid Br	2019	ug/L	.34	N/A	.2 - .34	.34 max	By-product / drinking water disinfection
Bromochloroacetic Acid	2019	ug/L	.34	N/A	.3 - .34	.34 max	By-product / drinking water disinfection

KEY					
</≤	= Less than / Less than or equal to	AL	= Action Level	Max	= Maximum
Min	= Minimum	N/A	= Not Applicable	ND	= Non - Detect
NL	= Notification Level	NoP	= Number of Coliform Positive Samples	NTU's	= Nephelometric Turbidity Units
ORL	= Other regulatory Level	ppb	= parts per billion	ppm	= parts per million

Appendix I

26 March 2021 SFPUC Commission Special Meeting – Water Workshop Number 3 Water Supply Planning Scenarios SFPUC Staff Presentation Materials

Water Workshop Number 3
Water Supply Planning Scenarios

March 26, 2021

Introduction

- Ten water supply planning scenarios were run using our HHLSM system modeling tool and the Regional Water System Supply and Demand Worksheet.
- For each scenario the ultimate result is either a surplus or deficit of supply, and each scenario produces different results, demonstrating the effect of the choices that are made.
- The assumptions and results for each scenario will be displayed in this presentation.
- The presentation concludes with a summary table of the bottom-line results for all the scenarios.

The Ten Scenarios

I. Previous Demand Estimates
II. Current Conditions
III. Tuolumne River Voluntary Agreement
IV. Bay-Delta Plan
V. Bay-Delta Plan with Alternative Water Supply Projects
VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy
VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought
VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought
IX. NGO scenario 1: Current system, 198 mgd constant demand, Bay-Delta Plan flows
X. NGO Scenario 2: Current system, 223 mgd constant demand, 7 ½ year design drought, Bay-Delta Plan flows

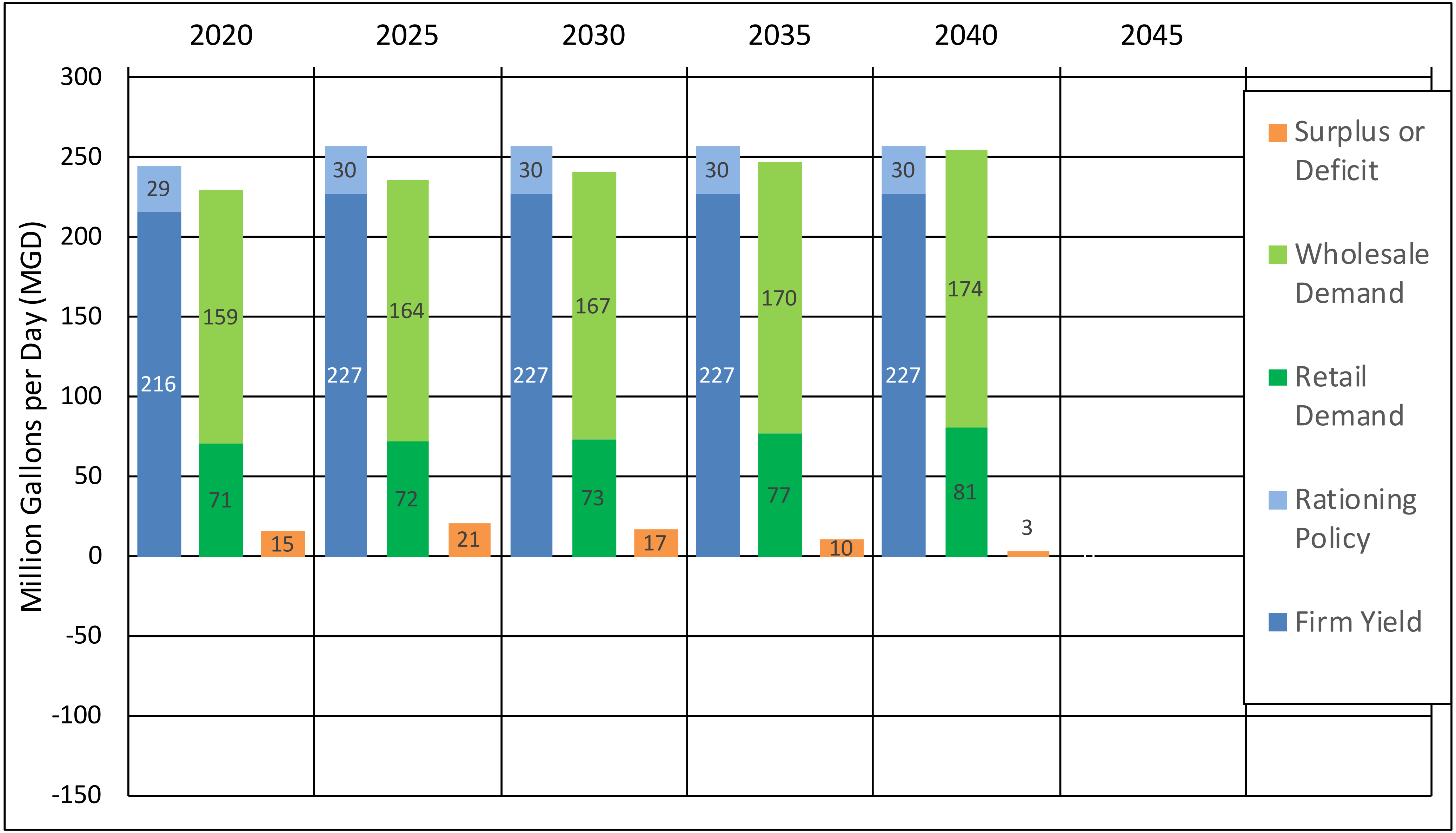
I. Prior Demand Estimates

- Includes retail demand projections from the 2015 Urban Water Management Plan
- Includes 2015 purchase projections from wholesale customers
- Includes current side agreement on flows in the lower Tuolumne River
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	2020	2025	2030	2035	2040	2045
Total Yield:	245	257	257	257	257	NA
RWS Demand:	230	236	241	247	255	NA
Lower Tuolumne Contribution:	NA	NA	NA	NA	NA	NA
Surplus or Deficit:	15	21	17	10	3	NA

I. Prior Demand Estimates



II. Current Conditions

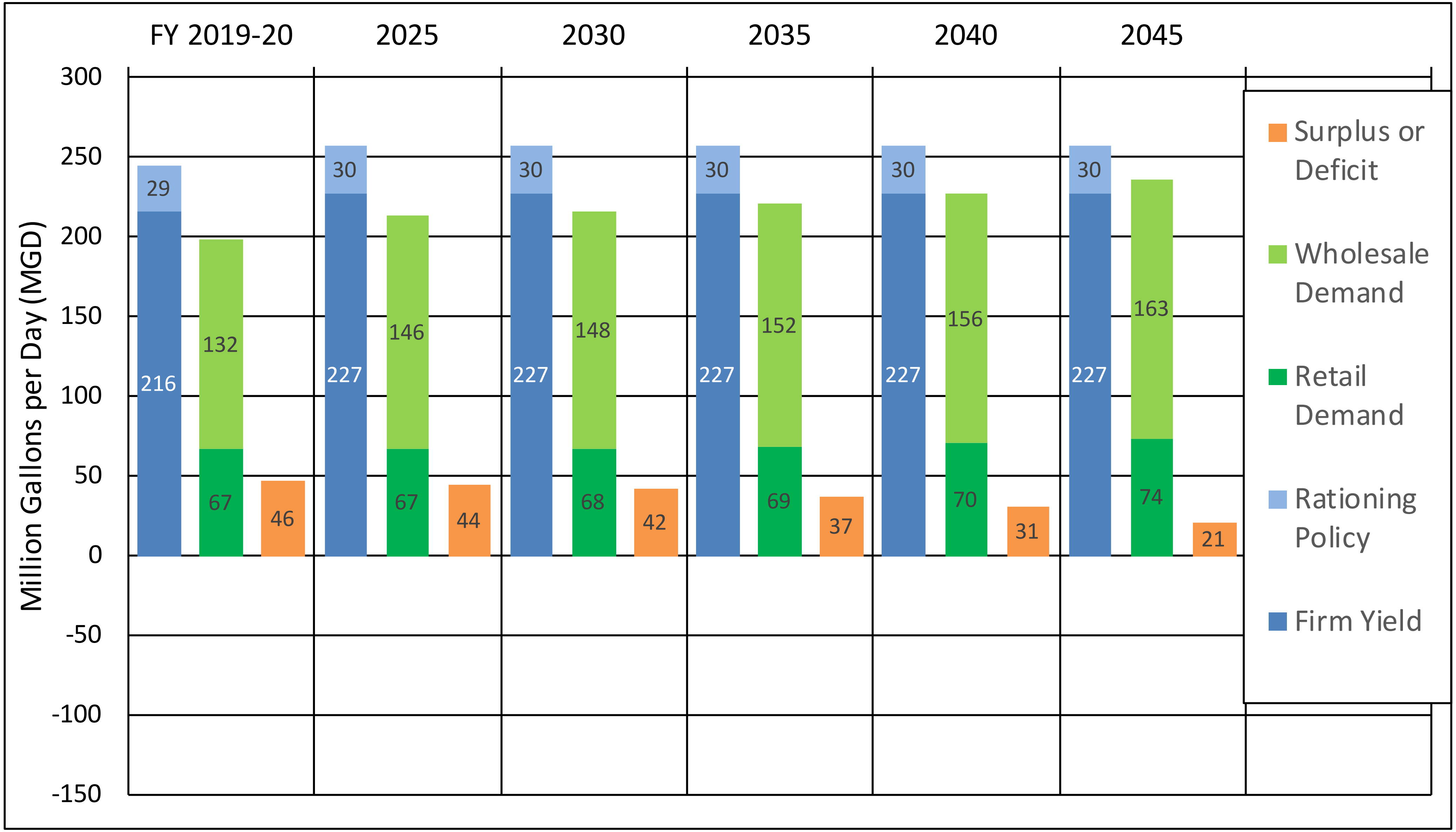
- Includes updated demand projections for anticipated development in retail service area*
- Includes most recent purchase projections from wholesale customers*
- Includes a total of 9 MGD for San Jose and Santa Clara*
- Includes the 1995 side agreement on flows in the lower Tuolumne River
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	257	257	257	257	257
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	NA	NA	NA	NA	NA
Surplus or Deficit:	46	44	42	37	31	21

* Base Conditions in later slides

II. Current Conditions



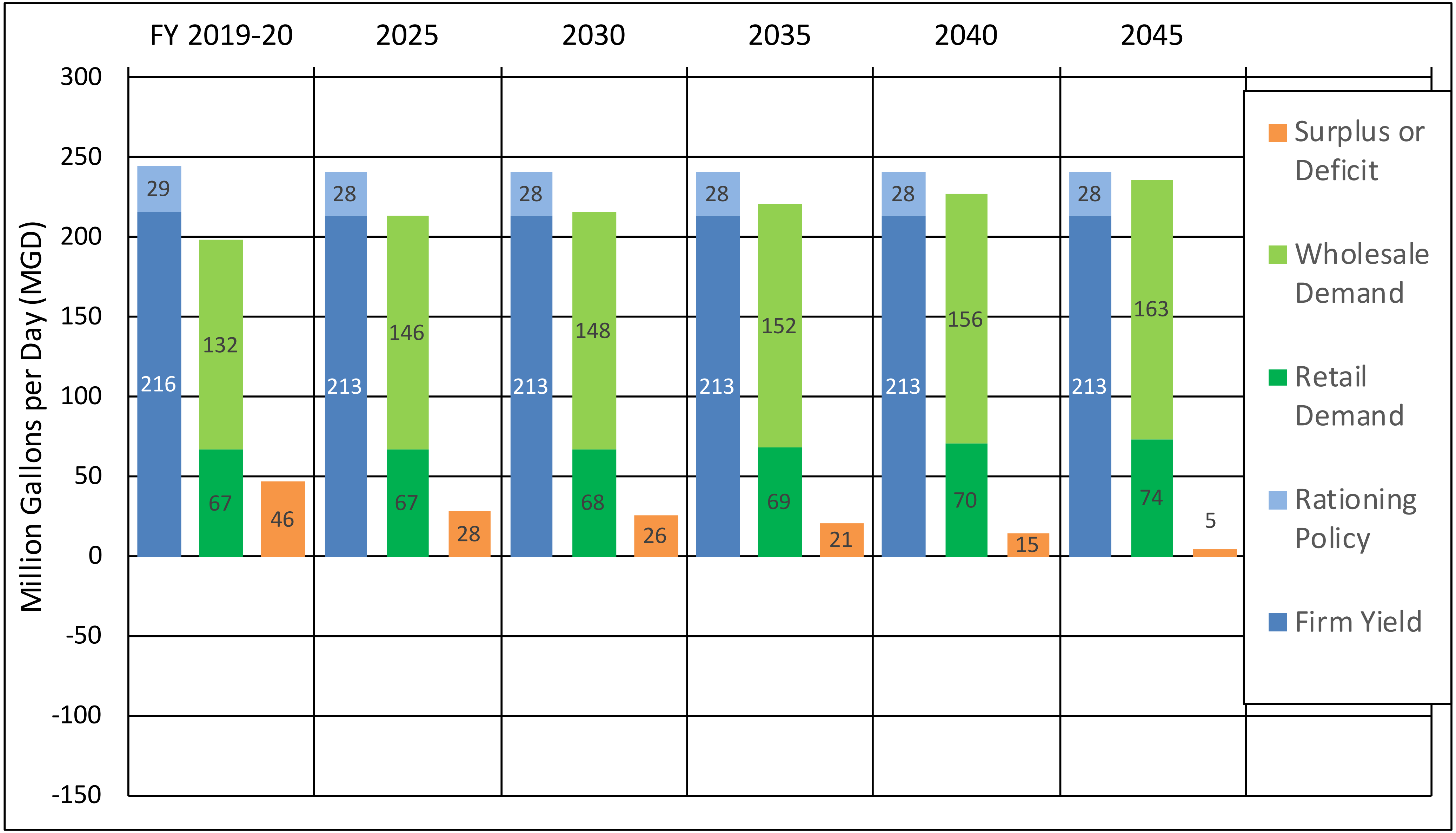
III. Tuolumne River Voluntary Agreement

- Base Conditions
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the TRVA, displayed in the graph as a reduction in Firm Yield
- SFPUC contributions are calculated according to the 4th Agreement and assumes continuation of the 1995 side agreement.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	241	241	241	241	241
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	14	14	14	14	14
Surplus or Deficit:	46	28	26	21	15	5

III. Tuolumne River Voluntary Agreement



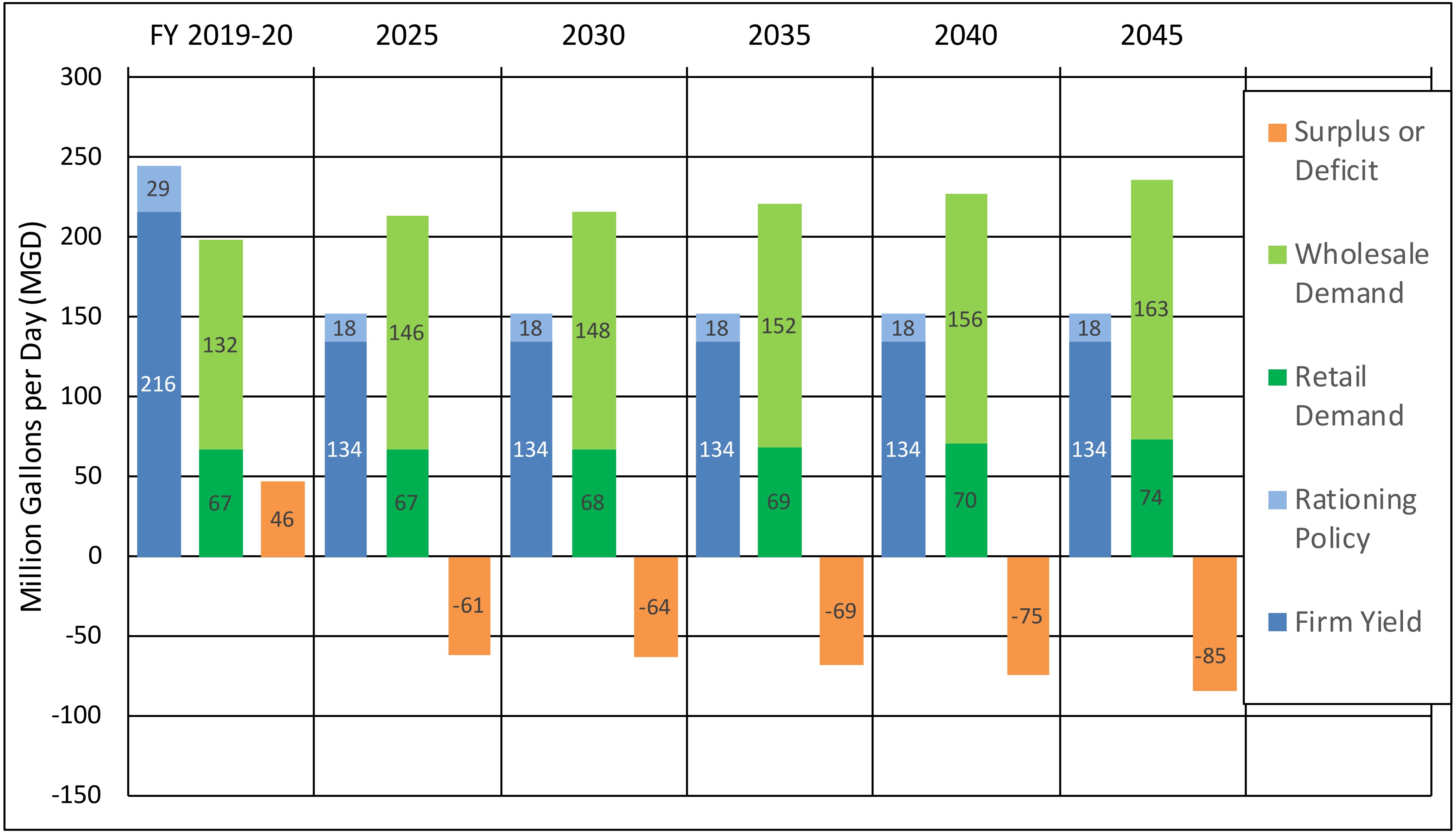
IV. Bay-Delta Plan

- Base Conditions
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	152	152	152	152	152
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	93	93	93	93	93
Surplus or Deficit:	46	-61	-64	-69	-75	-85

IV. Bay-Delta Plan



V. Bay-Delta Plan with Alternative Water Supply Projects

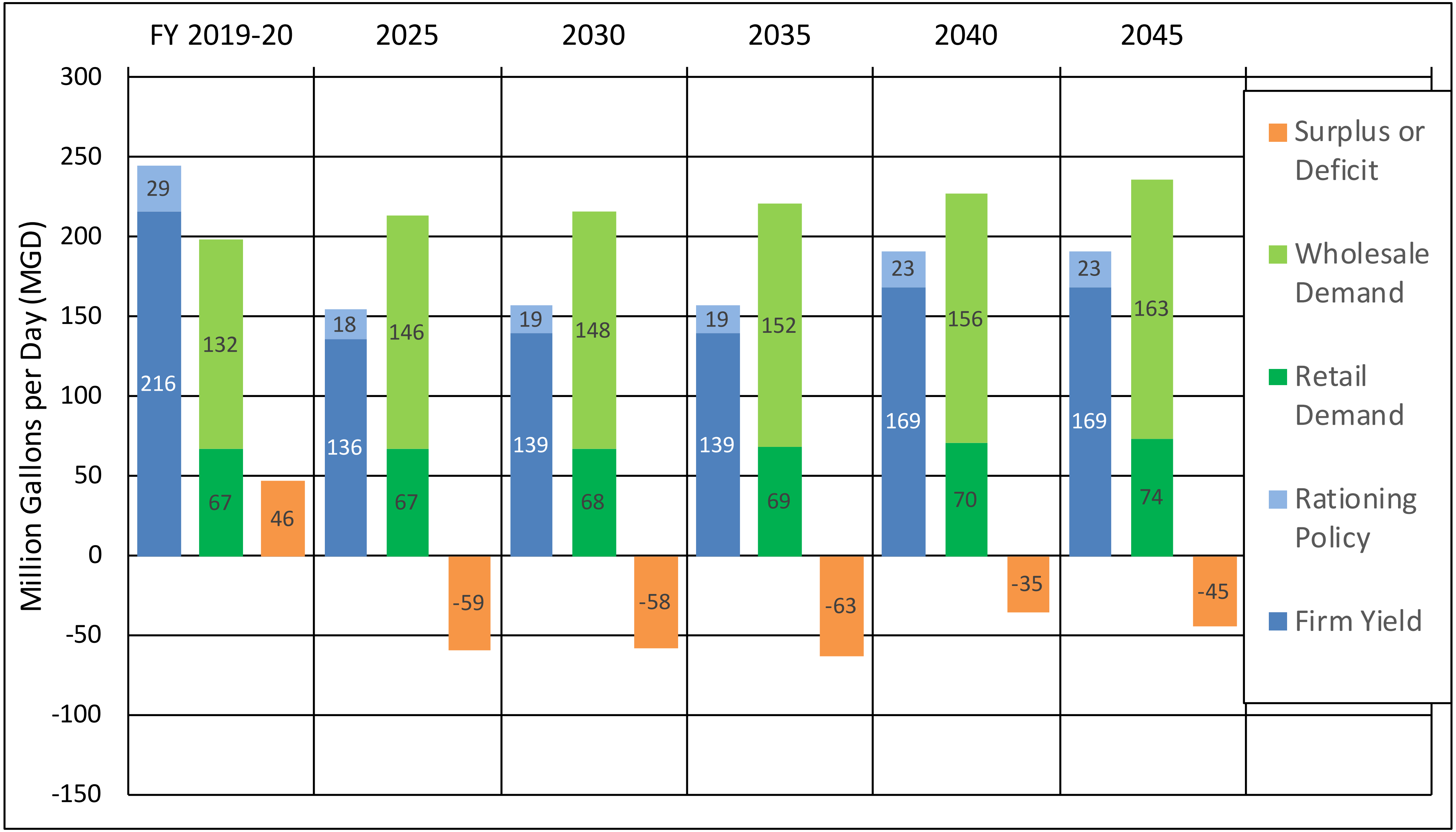
- Base Conditions
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, which are assumed to be added between 2025 and 2040. The firm yield from the new projects is shown separately in the table to demonstrate the estimated development of the projects over time. The new project yield is also included in the Total Yield shown in the table.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	245	154	158	158	192	192
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	93	93	93	93	93
Alternative Water Supply Projects:	NA	2	5	5	35	35
Surplus or Deficit:	46	-59	-58	-63	-35	-45

Hetch Hetchy Regional Water System

V. Bay-Delta Plan with Alternative Water Supply Projects



VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy

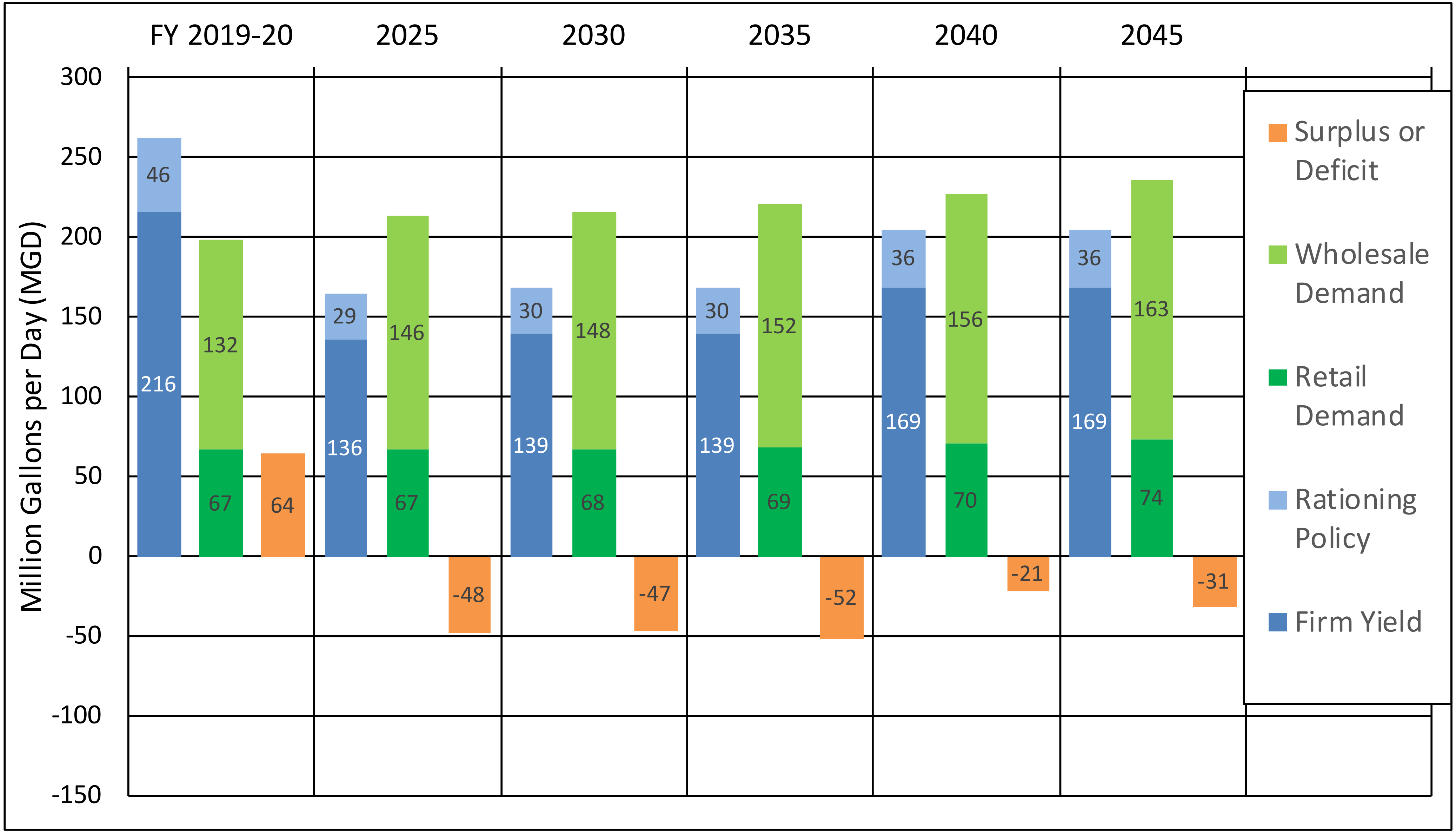
- Base Conditions
- Yield values are based on the 8.5-year design drought
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4^{th} Agreement and assuming continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, as described on slide 12 for scenario V
- Includes 7.5 years of rationing at 20% in the 8.5-year design drought sequence

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	262	165	169	169	205	205
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	93	93	93	93	93
Surplus or Deficit:	64	-48	-47	-52	-21	-31

Hetch Hetchy Regional Water System

VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy



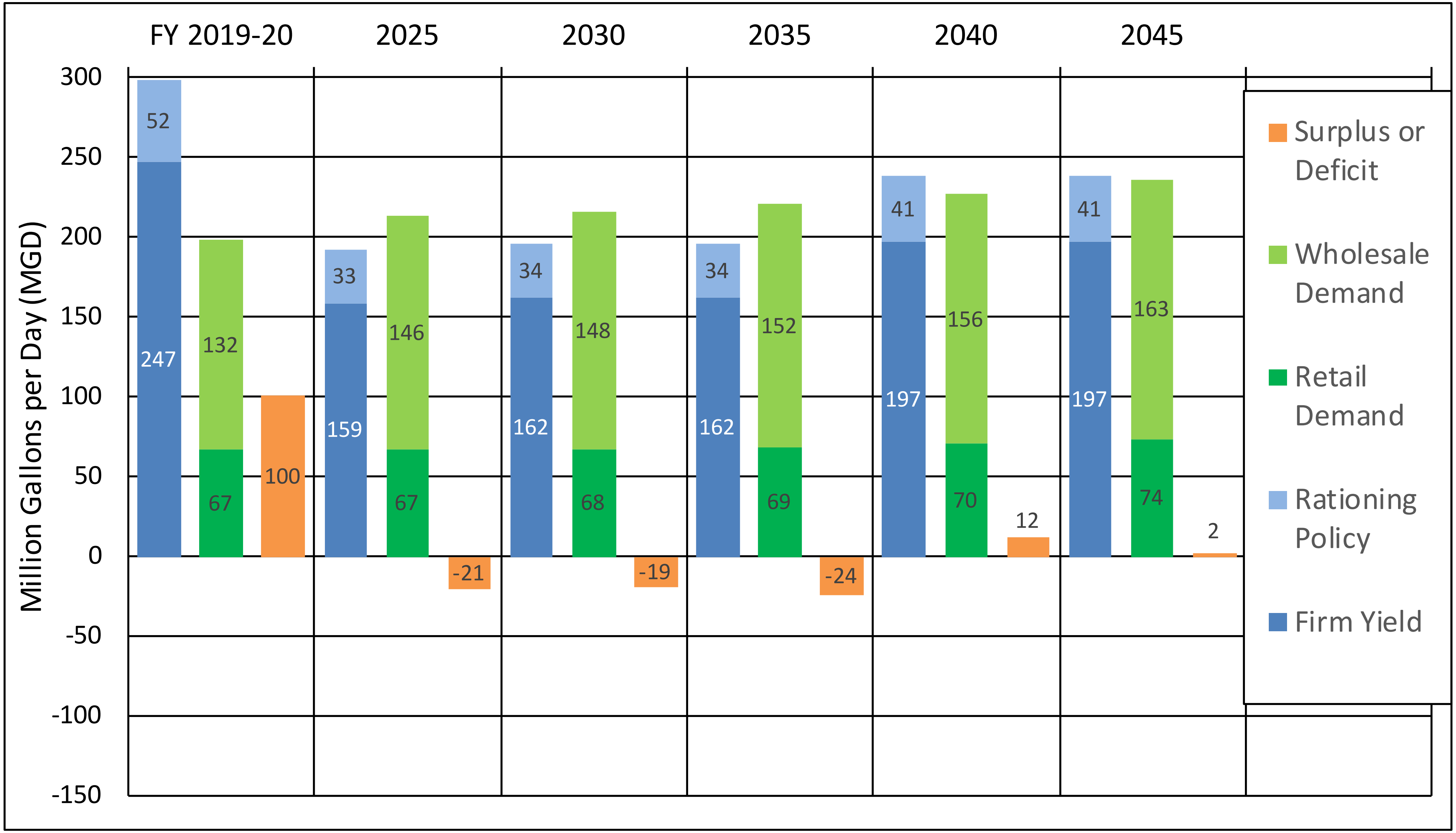
VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought

- Base Conditions
- Includes SFPUC contribution to the Bay-Delta Plan displayed in the graph as a reduction in Firm Yield, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, as described on slide 12 for scenario V
- Yield values are estimated using a 7.5-year design drought
- Includes 6.5 years of rationing at 20% in the 7.5-year design drought sequence.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	299	192	196	196	238	238
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	101	101	101	101	101
Surplus or Deficit:	100	-21	-19	-24	12	2

VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought



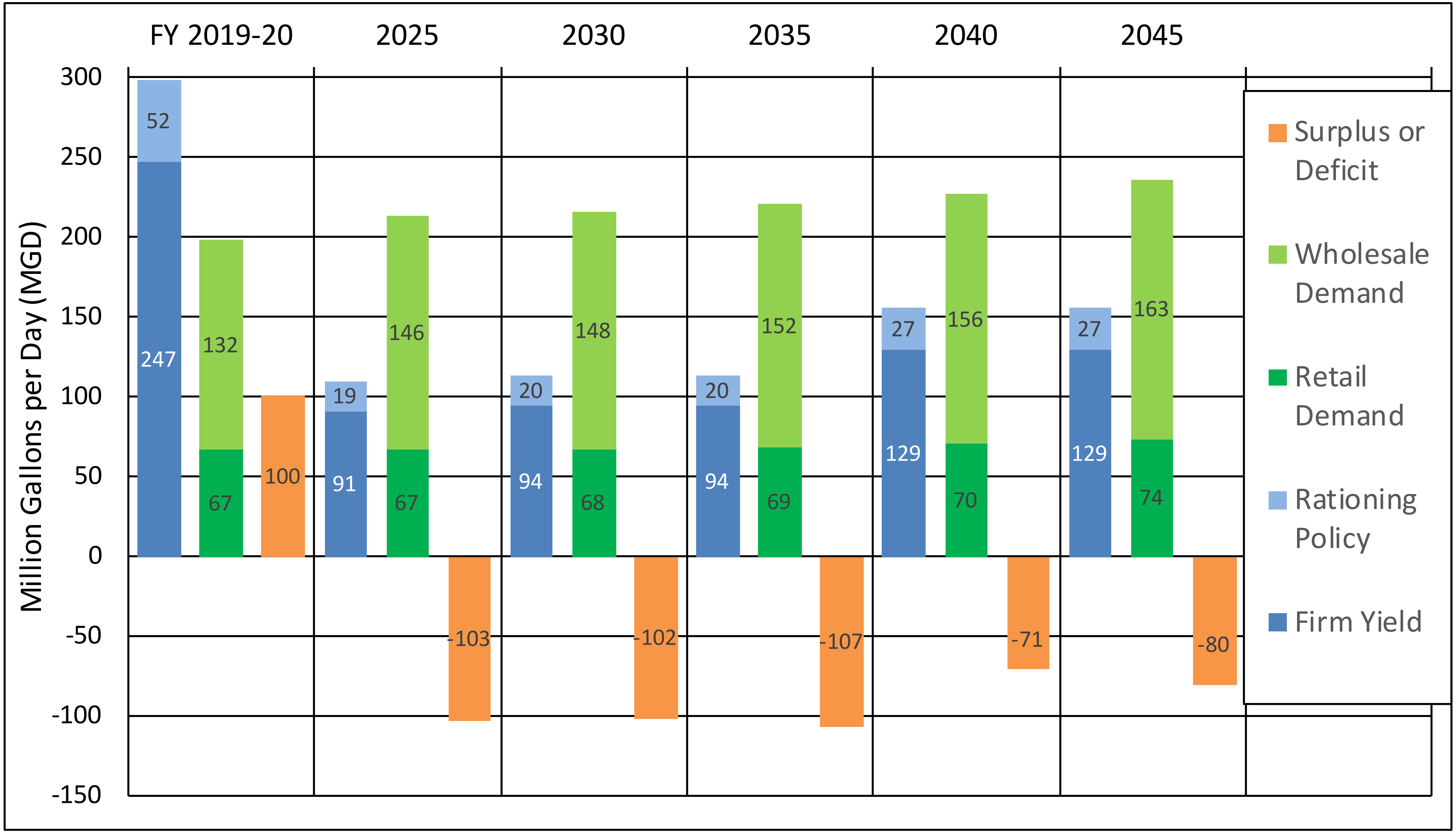
VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought

- Base Conditions
- Includes SFPUC contribution to the Section 401 water quality certification on the FERC license displayed in the graph as a reduction in Firm Yield.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Includes a total of 35 MGD of new water supply projects, as described on slide 12 for scenario V
- Yield values are estimated using a 7.5-year design drought
- Includes 6.5 years of rationing at 20% in the 7.5-year design drought sequence.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	299	110	114	114	156	156
RWS Demand:	198	213	215	220	227	236
Lower Tuolumne Contribution:	NA	169	169	169	169	169
Surplus or Deficit:	100	-103	-102	-107	-71	-80

VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought



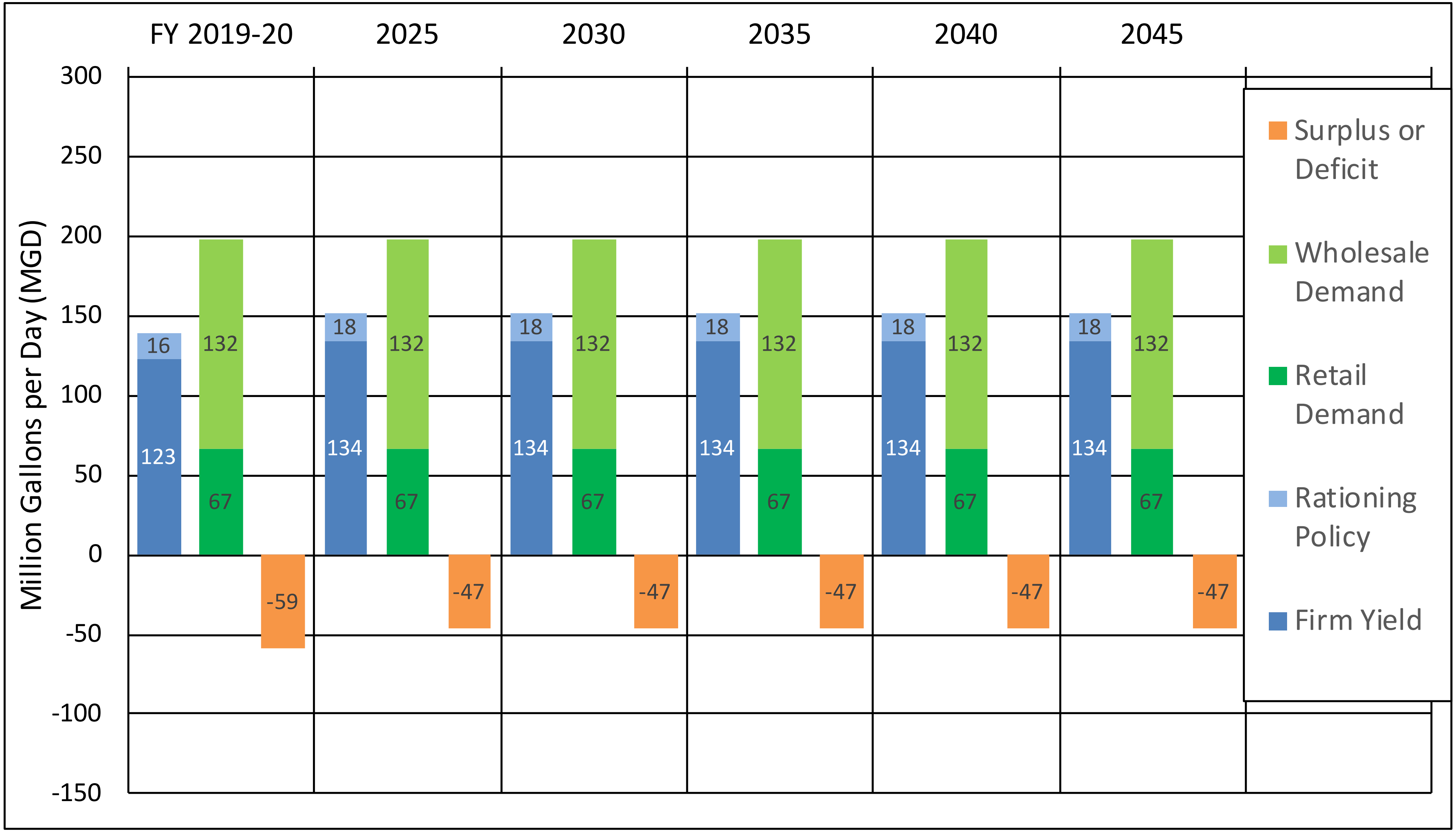
IX. NGO scenario 1: Current system, 198 mgd constant demand, Bay-Delta Plan flows

- Assumes that retail and wholesale demand on the RWS remain at the current level of approximately 198 MGD, and that SFPUC contributions to the Bay-Delta Plan are being made now
- Yield values are based on the 8.5-year design drought and the adopted WSIP rationing policy
- Includes SFPUC contribution to the Bay-Delta Plan, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	139	152	152	152	152	152
RWS Demand:	198	198	198	198	198	198
Lower Tuolumne Contribution:	93	93	93	93	93	93
Surplus or Deficit:	-59	-47	-47	-47	-47	-47

IX. NGO scenario 1: Current system, 198 mgd constant demand, Bay-Delta Plan flows



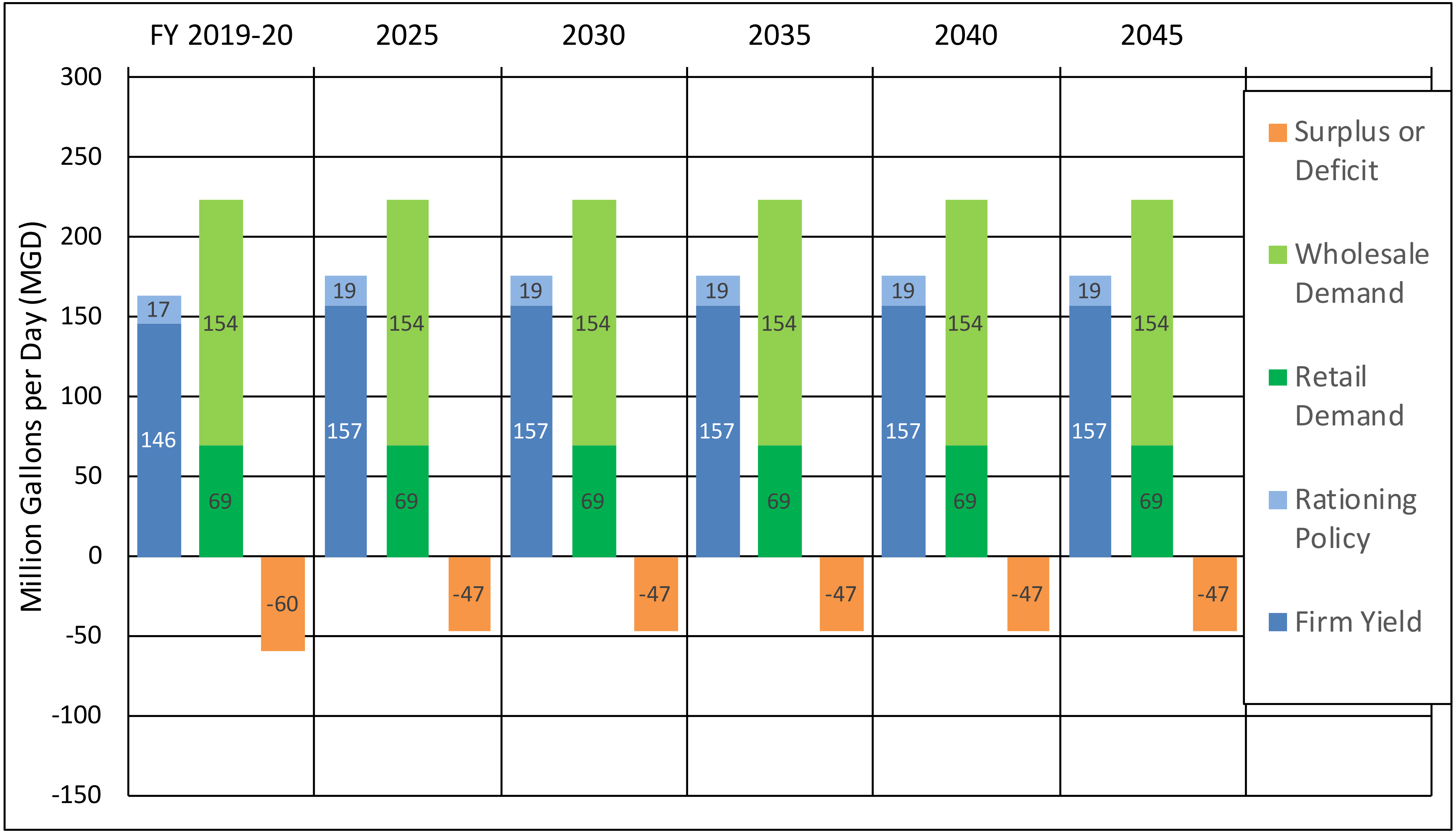
X. NGO scenario 2: Current system, 223 mgd constant demand, 7½ year design drought, Bay-Delta Plan flows

- Includes an assumed demand of 223 MGD for the SFPUC service area in all years
- Includes a total of 9 MGD for San Jose and Santa Clara
- Includes SFPUC contribution to the Bay-Delta Plan, assuming the flow requirement is 40% of unimpaired flow at La Grange from February through June. Current FERC flow requirements are assumed for the rest of the year. Assumes this contribution begins now.
- SFPUC contributions are calculated according to the 4th Agreement and assuming continuation of the 1995 side agreement.
- Yield values are estimated using a 7.5-year design drought and a truncated version of the adopted WSIP rationing policy

SFPUC Water Supply and Demand Worksheet Results
All values are in million gallons per day (MGD)

	FY 2019-20	2025	2030	2035	2040	2045
Total Yield:	163	176	176	176	176	176
RWS Demand:	223	223	223	223	223	223
Lower Tuolumne Contribution:	101	101	101	101	101	101
Surplus or Deficit:	-59	-47	-47	-47	-47	-47

X. NGO scenario 2: Current system, 223 mgd constant demand, 7½ year design drought, Bay-Delta Plan flows



SCENARIO SURPLUSES OR DEFICITS						
SCENARIOS	**FY19-20**	**2025**	**2030**	**2035**	**2040**	**2045**
I. Previous Demand Estimates	15	21	17	10	3	NA
II. Current Conditions	46	44	42	37	31	21
III. Tuolumne River Voluntary Agreement	46	28	26	21	15	5
IV. Bay-Delta Plan	46	-61	-64	-69	-75	-85
V. Bay-Delta Plan with Alternative Water Supply Projects	46	-59	-58	-63	-35	-45
VI. Bay-Delta Plan with Alternative Water Supply Projects and Modified Rationing Policy	64	-48	-47	-52	-21	-31
VII. Bay-Delta Plan with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design	100	-21	-19	-24	12	2
VIII. Water Quality Certification (401) with Alternative Water Supply Projects, Modified Rationing Policy and Modified Design Drought	100	-103	-102	-107	-71	-80
IX. NGO scenario 1: Current system and 198 mgd constant demand and Bay-Delta Plan flows	-59	-47	-47	-47	-47	-47
X. NGO Scenario 2: Current system, 223 mgd constant demand, 7 ½ year design drought and Bay-Delta Plan	-60	-47	-47	-47	-47	-47

Appendix J

Water Shortage Contingency Plan

Water Shortage Contingency Plan
2020 Update

City of East Palo Alto

June 2021

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TABLES

ATTACHMENTS

1. INTRODUCTION

☑ ***CWC § 10640***

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

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

The City of East Palo Alto's (City's or East Palo Alto's) Water Shortage Contingency Plan (WSCP) is developed to serve as a flexible framework of planned response measures to mitigate future water supply shortages. This WSCP builds upon and supersedes the WSCP that was presented in the 2015 Urban Water Management Plan (UWMP).

The WSCP includes the stages of response to a water shortage caused by drought or by supply interruptions caused by infrastructure failure, regulatory mandate, or catastrophic human-caused or natural events. The primary objective of the WSCP is to ensure that East Palo Alto has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. The WSCP also includes procedures to conduct an annual assessment of water supply and demand in order to determine whether water shortage conditions are likely to exist in the forthcoming year, and to proactively begin the process of implementing WSCP stages of action, as appropriate.

This WSCP has been prepared in accordance with California Water Code (CWC) § 10640 and CWC § 10632 of the UWMP Act. Text from the UWMP Act has been included in grey text boxes with italicized font at beginning of relevant sections of this WSCP. The information presented in the respective WSCP sections and the associated text and tables are collectively intended to fulfill the requirements of that sub-section of the UWMP Act.

The City has authority within the City of East Palo Alto's Municipal Code 13.24, Article VI to require water rationing and conservation and to enforce penalties. East Palo Alto Municipal Code 13.24, Article VI is included as Attachment 1 of this WSCP.

East Palo Alto developed this WSCP based on the following guiding principle:

> *Eliminate water waste, prioritize the reduction of non-essential water uses, and preserve water uses that are essential to the health, safety, welfare, and economic vitality of the City's customers during periods of water shortage.*

Practically, this principle guides East Palo Alto to ask for a shared contribution from all of its customers towards meeting water reduction goals during periods of water shortage. It further directs East Palo Alto to focus its water conservation efforts on reducing discretionary water uses such as outdoor irrigation, while attempting to minimize economic and other impacts to its residential and commercial customers.

2. WATER SUPPLY RELIABILITY ANALYSIS

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

This section provides a summary of East Palo Alto's water supply reliability analysis in Chapter 7 of the City's 2020 UWMP, recognizing that the WSCP is intended to be a standalone document that can be adopted and amended independently.

East Palo Alto primarily relies on the San Francisco Public Utilities Commission (SFPUC) Regional Water System (RWS) for its potable water supply, with small amounts of supply projected to come from groundwater. In accordance with the SFPUC's perpetual obligation to East Palo Alto's Supply Assurance, East Palo Alto has an Individual Supply Guarantee (ISG) of 3.46 million gallons per day (MGD), or 1,264 million gallons (MG) per year. The City also owns and operates one groundwater well, which is projected to supply approximately 7 MG per year.

East Palo Alto's supply reliability relies largely on the reliability of the SFPUC RWS. The SFPUC has committed to, among other things, meeting the retail and wholesale customers' average annual water demand during non–drought years and meeting dry-year delivery needs while limiting rationing to a maximum 20% system-wide reduction in water service during extended droughts. However, several potential constraints have been identified on the future supply availability of the SFPUC RWS. One of the key factors is the adoption of the 2018 Bay-Delta Plan Amendment. If the Bay-Delta Plan Amendment is implemented, the SFPUC is anticipated to have sufficient supplies to meet the projected water demands in normal years but would experience significant supply shortages in single dry years or multiple dry years.

Based on the current allocation methodology[1] and SFPUC dry year cutbacks, East Palo Alto is anticipated to experience up to 495 MG (46%) supply shortfall in single dry years by 2045 and up to 582 MG (54%) supply shortfall in the second through fifth year multiple dry years by 2045.

However, numerous uncertainties remain in the implementation of the Bay-Delta Plan Amendment and the allocation of the available supply between the wholesale customers. The resultant actual supply reliability and the frequency of supply shortfalls for East Palo Alto cannot be known currently. East Palo Alto has placed high priority on working with SFPUC and the Bay Area Water Supply and Conservation Agency (BAWSCA) to better refine the estimates of RWS supply reliability and may revise its UWMP accordingly. The SFPUC and BAWSCA have also been taking various actions to improve the reliability of

[1] The SFPUC and the wholesale customers have negotiated and adopted a plan to allocate the RWS supply during system-wide shortages of 20% or less. To address the instances where the supply shortfalls are projected to be greater than 20%, BAWSCA has developed a revised methodology to allocate the RWS supply. This allocation method is intended to serve as the preliminary basis for the 2020 UWMP supply reliability analysis and does not in any way imply an agreement by BAWSCA member agencies as to the exact allocation methodology. Details on the SFPUC RWS supply reliability are provided by the SFPUC and the BAWSCA and are documented in Sections 7.1 through 7.3 as well as Appendix F of the 2020 UWMP.

the RWS supply, including implementing a number of dry year water supply projects, exploring alternative water supplies, and implementing Long-Term Reliable Water Supply Strategy recommendations.

As part of the supply reliability analysis, East Palo Alto has conducted a Drought Risk Assessment (DRA), which evaluates the effects on available water supply sources of an assumed five-year drought commencing the year after the assessment is completed (i.e., from 2021 through 2025). East Palo Alto's supply is expected to be sufficient to meet demands in the first two years of the assumed drought (i.e., 2021 and 2022). However, based on the current allocation methodology and SFPUC dry year cutbacks, East Palo Alto is expected to experience significant shortfalls in subsequent years of the assumed drought through 2025. The largest shortfall is estimated to be 351 MG in 2025.

East Palo Alto has developed this WSCP to address water shortage conditions resulting from any cause (e.g., droughts, impacted distribution system infrastructure, regulatory-imposed shortage restrictions, etc.). The WSCP identifies a variety of actions that East Palo Alto will implement to reduce demands and further ensure supply reliability at various levels of water shortage.

3. ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

☑ ***CWC § 10632 (a) (2)***

The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

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

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

(iii) Existing infrastructure capabilities and plausible constraints.

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

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

☑ ***CWC § 10632.1***

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

☑ ***CWC § 10632.2***

An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

Beginning by July 1, 2022, East Palo Alto will conduct an Annual Supply-Demand Assessment (Annual Assessment) to identify whether there is likely to be a water shortage condition in the following year. Because East Palo Alto's primary source of potable water supply is from the SFPUC RWS, the evaluation of City supplies for a particular year will be based on information provided by the SFPUC or BAWSCA. East Palo Alto will conduct the Annual Assessment as part of a coordinated effort lead by BAWSCA. The procedure used by BAWSCA in conducting an Annual Assessment is outlined in Attachment 2 of this WSCP.

Use of the City's Gloria Way Well is assumed to be 100% reliable, since the well operates at a duration and flow rate that is significantly less than its design capacity and within projected volumes that were estimated could be pumped without impacts to the local groundwater basin.

4. WATER SHORTAGE LEVELS

☑ ***CWC § 10632 (a) (3)***

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

Consistent with the requirements of CWC § 10632(a)(3), this WSCP is based on the six water shortage levels (previously referred to as "stages") shown in Table 4-1. These shortage levels are intended to address shortage caused by any condition, including the catastrophic interruption of water supplies. Table 4-1 summarizes how the City has adapted its 2015 WSCP stages to meet the 2020 WSCP mandated shortage levels.

Table 4-1. Comparison Between 2015 WSCP Shortage Stages and the 2020 WSCP Shortage Levels

2015 WSCP Stage	Percent Supply Reduction
1	N/A
2	Up to 5% Reduction
3	Up to 15% Reduction
4	Up to 30% Reduction
5	Up to 50% Reduction

2020 WSCP Level	Shortage Level
1	≤10%
2	10-20%
3	20-30%
4	30-40%
5	40-50%
6	>50%

Table 4-2 describes the customer's water use restrictions and the City's consumption reduction methods (i.e., the actions to be taken by City staff) associated with each shortage level.

Table 4-2. Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	• In addition to mandatory prohibitions in force at all times, declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) SFPUC or another governing authority (e.g., the State Water Resources Control Board [SWRCB]) has required a voluntary or mandatory reduction in water use of up to 10% due to water supply shortages or an emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 10%. • Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
2	Up to 20%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 20% due to water supply shortages or an emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 20%. • Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
3	Up to 30%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 30% due to water supply shortages or an emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 30%. • Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
4	Up to 40%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The

Shortage Level	Percent Shortage Range	Shortage Response Actions
		SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 40% due to water supply shortages or an emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 40%. • Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
5	Up to 50%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 50% due to water supply shortages or an emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 50%. • Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).
6	>50%	• Declaration by the Public Works Director or designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist: (1) The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use greater than 50% due to water supply shortages or an emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use greater than 50%. • Includes implementation of mandatory restrictions on end uses (see Table 5-1) as well as agency actions (see Table 5-2).

5. SHORTAGE RESPONSE ACTIONS

☑ ***CWC § 10632 (a) (4)***

Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

☑ ***CWC § 10632 (b)***

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

This section describes the response actions the City will take to deal with the shortages associated with each of the six stages enumerated in Section 4.

5.1 Demand Reduction Methods

As discussed above and shown in Table 5-1, the WSCP lists the demand reduction methods that East Palo Alto will implement during each stage of action to reduce East Palo Alto's water consumption and encourage reduction in water use by its customers. The monthly and cumulative annual water savings impacts associated with each restriction, prohibition and consumption reduction method were quantitatively estimated using the Drought Response Tool (DRT), an Excel spreadsheet model developed by EKI Environment and Water, Inc., for the DRT model for each shortage level, see Attachment 3.

A main focus of East Palo Alto's planned demand reduction measures is to increase public outreach and keep customers informed of the water shortage emergency and actions they can take to reduce consumption. The public outreach efforts that East Palo Alto will implement to respond to a water shortage are described in Section 6.

5.2 Supply Augmentation

As shown in Table 5-2, the City will utilize its emergency supply well as supply augmentation during Stages 5 and 6. The City is planning to construct one emergency groundwater well (Pad D Well) which can produce up to 500 gallons per minute (gpm) of supply. Water supply from the emergency supply well is currently not considered in the City's planning for normal or dry year supply. The well will provide augmented supply for the City in the event of significant water shortage due to severe drought conditions, an earthquake, or other emergency.

Table 5-2 also includes other actions that the City will take, including coordination with other agencies, implementing drought surcharge, increasing water waste patrols, etc.

Table 5-1. Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1	Other	5%	1. Hoses must be equipped with a shut-off valve for washing vehicles, sidewalks, walkways, or buildings. 2. Broken or defective plumbing and irrigation systems must be repaired or replaced within 48 hours. 3. Recreational water features, including pools, spas, and jacuzzis, shall be covered when not in use. 4. Ornamental fountains shall use only re-circulated or recycled water. 5. Single-pass cooling systems on new construction shall not be allowed. 6. Potable water shall not be applied in any manner to any driveway, sidewalk, or other hard surface except when necessary to address immediate health or safety concerns. 7. Potable water shall not be used to water outdoor landscapes in a manner that causes runoff onto non-irrigated areas, walkways, roadways, parking lots, or other hard surfaces. 8. Potable water cannot be applied to outdoor landscapes during and up to 48 hours after measurable rainfall. 9. Potable water shall not be used to irrigate ornamental turf on public street medians. 10. Using potable water to irrigate outside of newly constructed homes and buildings in a manner that is inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited. 11. Removing, replacing, altering, or damaging any water meter is prohibited. 12. Other measures as may be approved by Resolution of the City Council.	Yes

Table 5-1. Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
2	Other	15%	1. Continue with actions and measures from Stage 1 except where superseded by more stringent requirements. 2. All landscape irrigation is restricted to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on agricultural or commercial water use. There is no restriction on watering using recycled water. 3. Hotels and motels shall provide guests an option whether to launder towels and linens daily. Hotels and motels shall prominently display notice of this option in each bathroom using clear and easily understood language. 4. Restaurants and other food service operations shall serve water to customers only upon request. 5. Other measures as may be approved by resolution of the City Council.	Yes
3	Other	25%	1. Continue with actions and measures from Stage 2 except where superseded by more stringent requirements. 2. Agricultural and commercial nursery water use is limited to three days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water. 3. All other landscape irrigation, except for agricultural and commercial nursery water use, is restricted to one day per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. There is no restriction on watering using recycled water. 4. Other measures as may be approved by resolution of the City Council.	Yes

Table 5-1. Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
4	Other	35%	1. Continue with actions and measures from Stage 3 except where superseded by more stringent requirements. 2. The Public Works Director may prohibit water uses not required for public health and safety and fire protection. 3. The Public Works Director may prohibit all outdoor water uses, with the exception of agricultural and commercial nursery water use, which may be limited to two days per week between 10:00 pm and 8:00 am, on a schedule established by the Public Works Director and posted on the City's website. 4. The Public Works Director may prohibit all recreational water uses. 5. Water use shall not exceed the water budget established for each customer. 6. Other measures as may be approved by resolution of the City Council.	Yes
5	Other	45%	1. Continue with actions and measures from Stage 4 except where superseded by more stringent requirements. 2. Water use shall not exceed established water budget for each customer. 3. Other measures as may be approved by resolution of the City Council.	Yes
6	Other	55%	1. Continue with actions and measures from Stage 5 except where superseded by more stringent requirements. 2. Other measures as may be approved by resolution of the City Council.	Yes

NOTES:
(a) The percentages listed in this table are the cumulative savings for each shortage level with implementation of corresponding supply augmentation and other agency actions in Table 5-2. Detailed saving estimates based on end use, response action, and implementation rates can be found in Attachment 3.

Table 5-2. Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference
1	Other	5%	1. Increase public outreach, including publishing water conservation information on the City website and promoting conservation through social media. 2. Expand outreach for existing water conservation programs.
2	Other	15%	1. Continue with actions and measures from Stage 1. 2. Increase public outreach, including information regarding fines or penalties for non-compliance and distributing water bill inserts regarding landscape irrigation restrictions. 3. Expand outreach for existing water conservation programs. 4. Increase water waste patrols.
3	Other	25%	1. Continue with actions and measures from Stage 2. 2. Increase public outreach. 3. Consider implementation of a drought rate structure and/or rate surcharge. 4. No new potable water service shall be provided by the City, except under the following circumstances. a. A valid, unexpired building permit has been issued for the project; or b. The project is necessary to protect the public's health, safety, and welfare; or c. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the Director; or d. To provide continuation of water service or to restore service that has been interrupted for a period of one year or less.

Table 5-2. Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? (a)	Additional Explanation or Reference
4	Other	35%	1. Continue with actions and measures from Stage 3. 2. The Public Works Director may modify the operation of the City's water system to reduce water use, including reduction of water main flushing and reduction of distribution system pressures. 3. The Public Works Director may establish water budgets, such that no customer shall make, cause, use, or permit the use of water for any purpose in an amount in excess of a certain percentage of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year. Waivers or reductions may be granted to individual customers as deemed appropriate by the City. No customer shall be required to reduce water consumption below the minimum amount required for health and safety, as determined by the City.
5	Other	45%	1. Continue with actions and measures from Stage 4. 2. Increase water budget reduction requirements. 3. Use emergency groundwater well.
6	Other	55%	1. Continue with actions and measures from Stage 5. 2. Implement other short-term emergency actions.

NOTES:
(a) The percentages listed in this table are the cumulative savings for each shortage level with implementation of corresponding demand reduction actions in Table 5-1. Detailed saving estimates based on end use, response action, and implementation rates can be found in Attachment 3.

5.3 Operational Changes

The WSCP lists the operational changes that East Palo Alto will implement during each stage of action including measures to: (1) reduce system losses through a reduction in line flushing and fire training exercises; (2) increase enforcement and patrols; (3) develop water budgets; and in certain conditions, (4) implement a moratorium on new services.

5.4 Additional Mandatory Restrictions

East Palo Alto has the authority to restrict or prohibit specific water use practices during water shortages (City of East Palo Alto Municipal Code 13.24, Article VI). Restrictions and prohibitions associated with each stage of action are presented in Table 5-1. As discussed above, these responses focus on the reduction of non-essential water uses such as ornamental landscape irrigation, and preserve water uses that are essential to the health, safety, welfare, and economic vitality of East Palo Alto's customers.

In addition, several mandatory prohibitions are enforced at all times to eliminate water waste within the City (see Chapter 17.04 of the City's Municipal Code). Together, the prohibitions listed in Chapter 17.04 of the City's Municipal Code and Shortage Levels 1 and 2 include each of the prohibitions on end uses mandated by the SWRCB in Executive Order B-37-16. Prohibitions in subsequent stages go beyond the SWRCB requirements and become increasingly restrictive.

5.5 Emergency Response Plan

Catastrophic supply interruptions may be caused by a regional power outage, an earthquake, or other disaster. East Palo Alto benefits from two levels of emergency planning: planning by SFPUC and its own emergency planning work. In the event of a catastrophic supply interruption, the response procedures that East Palo Alto would follow are described in:

- SFPUC Emergency Operations Plan (EOP);
- San Mateo County's Operational Area EOP Potable Water Procurement and Distribution Annex;
- East Palo Alto's Emergency Action Plan, Fire Protection & Prevention and Critical Operations Plan (EAP), prepared by Veolia North America (City's water system contract operator); and
- East Palo Alto's Emergency Response Plan (ERP), prepared by Veolia North America (City's water system contract operator).

Actions described in the SFPUC EOP focus on maintaining flow within, and from, the RWS pipelines. The County of San Mateo's Operational Area EOP Potable Water Procurement and Distribution Annex (County of San Mateo, 2004) addresses San Mateo County's planned response to extraordinary emergency situations associated with natural disasters, man-made technological incidents and national security emergencies. This EOP is a preparedness document that is designed to be read, understood, and exercised prior to an emergency. Each city is responsible for ensuring the preparation and maintenance of appropriate and current Standard Operating Procedures, Emergency Operating Procedures, and alert lists that will support the EOP.

East Palo Alto's Emergency Action Plan, Fire Protection & Prevention and Critical Operations Plan, guides Veolia North America's (Veolia) emergency management in an organized response to general emergencies within the City. Veolia conducts training periodically to help assure that personnel are up to date regarding the emergency response procedures. Detailed information on personnel roles, responsibilities, emergency services, communication, recovery, and reporting procedures are provided in the EAP.

East Palo Alto's Emergency Response Plan works in coordination with the EAP and includes plans and procedures that can be implemented in the event of an emergency involving the water system to lessen the impact of on the safety and supply of drinking water. The ERP details threat evaluations, site characterizations, planned public health and operational responses, public notification strategies, and remediation and recovery actions. The most recent ERP is dated 2020 and is currently being updated as required per Section 2013 of America's Water Infrastructure Act of 2018.

In the event of a total failure of the RWS, the City would first activate or expand production at the Gloria Way Well. If operational, the City would also expand production at the Pad D Well. Next, the City would seek local groundwater capacity from the O'Connor Tract Cooperative Water Company and the Palo Alto Park Mutual Water Company.

5.6 Seismic Risk Assessment

☑ ***CWC § 10632.5***

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

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

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

On behalf of the City, American Water Enterprise (prior contract operator) conducted a Risk Based Vulnerability Assessment of the City's water system in 2002, which included seismic risk. The report discusses in specific detail the threats facing the City's distribution system and makes general and site-specific recommendations on how to mitigate the risks which have been assessed. The report further frames a methodology for the City to use to review the water system facilities and make informed decisions about the risks facing its system.

The City does not currently have any storage within its system, however is working with towards installing storage facilities. Therefore, the main seismic threat to the City are impacts to the City's distribution system and main supply source from the SFPUC RWS.

Impacts associated with earthquakes and liquefaction are discussed in the 2016 San Mateo County Hazard Mitigation Plan (County HMP; County of San Mateo, 2016). The County HMP includes a discussion of the probability of a seismic event affecting San Mateo County, citing a United States Geological Survey (USGS) estimate of a 63% probability of at least one 6.7 or greater magnitude earthquake before 2036 affecting the greater San Francisco Bay area. The County LHMP also includes an assessment of the County's vulnerability in the event of a major seismic event and estimates that an earthquake on the Northern San Andreas Fault of magnitude 7.8 would result in a total building damage of approximately $39.7 billion, or 12.4% of the total assessed value for the planning area.

5.7 Shortage Response Action Effectiveness

In order to evaluate and ensure that effective actions will be implemented with the proper level of intensity, East Palo Alto employed the DRT to calculate monthly savings anticipated by implementing each stage of action as detailed below.

5.7.1 Baseline Water Use Profile

Using the DRT, East Palo Alto developed a baseline water use profile that reflected usage patterns within the City's service area by major water use sector during 2018 and was used to guide development of the WSCP. A baseline year of 2018 was selected to be consistent with the baseline year used for developing water demand projections in Chapter 4 of the UWMP. Key findings from this analysis are presented below.

Residential Per Capita Demand

As shown in Table 5-3 and associated chart, East Palo Alto's baseline residential gallons per capita per day (R-GPCD) demand in 2018 was approximately 40 R-GPCD. This R-GPCD is much lower than the BAWSCA-wide average of 61 R-GPCD and is significantly less than the statewide average of 85 R-GPCD.

Estimated Proportion of Outdoor Water Use

As shown in Table 5-4 and the associated charts, outdoor water use, which can generally be considered as a "discretionary water use", was estimated to be approximately 14% of East Palo Alto's total consumption during this baseline time period (2018).

The DRT estimates indoor water use to be equivalent to the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use. If East Palo Alto customers tend to irrigate more heavily during winter months, an underestimation of the proportion of outdoor water use would occur.

The proportion of outdoor water use within residential and commercial sectors is estimated to be 14%. This indicates that there is the potential to achieve moderate water savings across these sectors (e.g., nearly up to WSCP Level 2), simply by focusing on outdoor uses. If the proportion of outdoor water use is being underestimated by the DRT method, then even more substantial savings may be achieved through targeting outdoor water use. As further shown in Table 5-4 and the associated charts, the seasonal variation in baseline water use reflects increased irrigation demands during the summer and fall months. Therefore, the greatest potential for reductions in non-essential water use is expected during these months.

Table 5-3. Baseline Residential Per Capita Water Demand

	Baseline Residential Per Capita Water Demand (R-GPCD)
East Palo Alto (a)	40
BAWSCA Agencies (b)	61
Statewide Average (c)	85

NOTES:
(a) East Palo Alto R-GPCD calculated using 2018 metering data.
(b) Average BAWSCA R-GPCD calculated from data provided in BAWSCA Annual Survey FY 2018-19 (BAWSCA, 2020).
(c) State-wide R-GPCD for 2019 obtained from data provided at California State Water Resources Control Board Water Conservation Portal - Conservation Reporting, http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml, accessed March 2021.

Chart 5-3 Baseline Residential Per Capita Water Demand

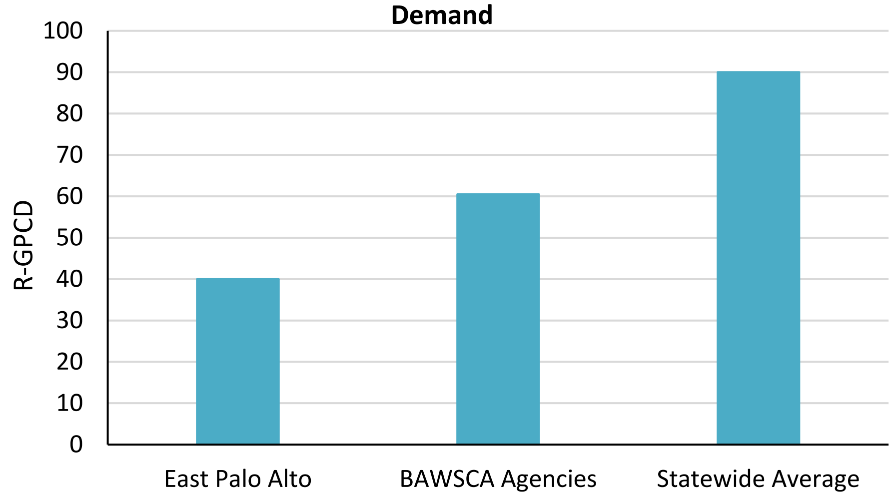


Table 5-4. Baseline Water Use Profile

Sector	End-Use	Baseline (2018) Water Use													Annual % of Total by Sector
		January	February	March	April	May	June	July	August	September	October	November	December	Annual	
Residential	Indoor (c)	27	25	27	27	27	27	27	27	27	27	27	27	324	87%
	Outdoor (c)	2	4	0	0	2	7	8	8	8	5	4	1	49	13%
	Subtotal Residential	*29*	*28*	*27*	*27*	*30*	*34*	*35*	*35*	*35*	*32*	*31*	*28*	*373*	-
CII	Indoor (c)	7	6	7	6	7	6	7	7	6	7	6	7	79	70%
	Outdoor (c)	1	1	0	1	2	4	4	6	6	4	3	1	33	30%
	Subtotal CII	*8*	*7*	*7*	*8*	*9*	*10*	*11*	*13*	*13*	*10*	*10*	*7*	*112*	-
Dedicated Irrigation	Outdoor	0	0	0	0	0	0	0	0	0	0	0	0	0	100%
Non-Revenue	Non-Revenue	6	4	9	9	13	10	12	7	2	9	5	5	89	100%
Total	Indoor	34	31	34	33	34	33	34	34	33	34	33	34	402	70%
	Outdoor	3	4	0	2	5	11	12	14	15	8	7	1	82	14%
	Non-Revenue	6	4	9	9	13	10	12	7	2	9	5	5	89	15.6%
	Total	**42**	**39**	**43**	**43**	**52**	**54**	**57**	**55**	**50**	**51**	**46**	**40**	**574**	-

NOTES:
(a) Volumes are in units of MG.
(b) Baseline water use from City's monthly metering data for each sector.
(c) Indoor water use was estimated to be the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use.

Chart 5-4A Baseline Year Annual Water Use by Sector and End Use

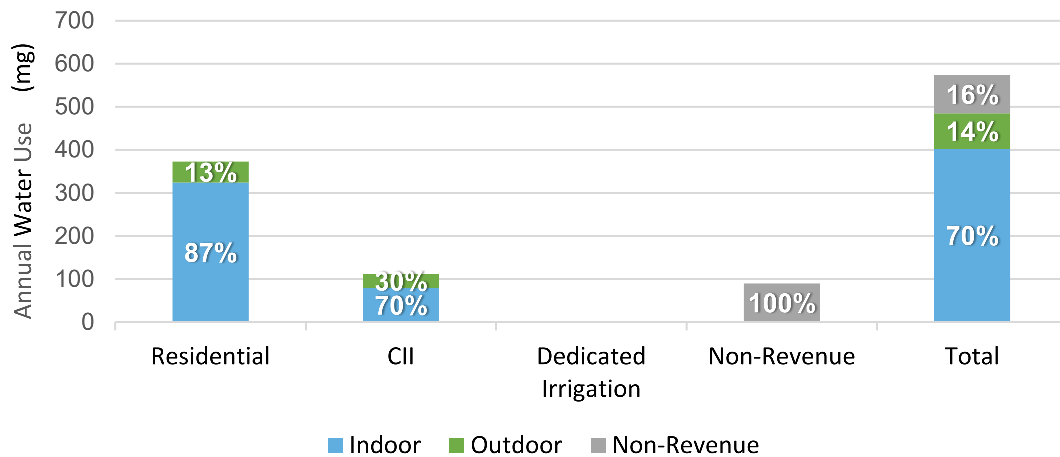
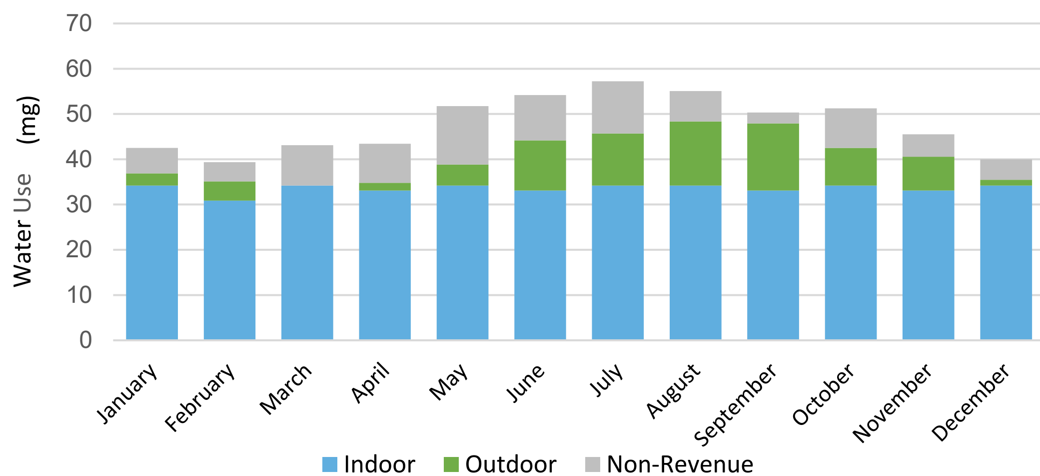


Chart 5-4B Baseline Year Monthly Indoor vs. Outdoor Water Use



5.7.2 Shortage Response Action Effectiveness

The DRT provides a quantitative framework that allows East Palo Alto to systematically estimate the monthly and cumulative annual demand reductions expected to result from particular combinations of drought response actions and associated implementation rates. Data inputs to the DRT include total production, class-specific water use, population, and assumptions regarding the split between indoor and outdoor water use for each customer class.

For each drought response action, the user specifies:

- The customer class(es) and end use(s) that are affected;
- The percent savings for that end use for each account that implements the action. These are based on evaluations reported in the literature; and
- The percentage of accounts assumed to implement the action, which is presumed to be the result of the intensity level of East Palo Alto's program implementation, including but not limited to, marketing and enforcement activities.

An additional critical DRT user input is a set of constraints on demand reductions to ensure that usage levels do not endanger health and safety or result in unacceptable economic impacts. The DRT will not permit estimated usage reductions to violate these constraints, regardless of the demand reduction actions selected. The constraints are:

- A minimum residential indoor per capita daily usage of 25 gallons,
- A maximum residential outdoor usage reduction of 100%,
- A maximum CII indoor usage reduction of 30%,
- A maximum CII outdoor usage reduction of 100%,
- A maximum dedicated irrigation usage reduction of 100%, and
- A maximum non-revenue water usage reduction of 50%.

Based on the foregoing data, the DRT model calculates the resulting monthly savings. East Palo Alto adjusted the combination of actions and implementation levels to achieve the targeted savings levels at each of the six stages of action.

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

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

East Palo Alto's shortage response actions are summarized in Table 5-1 and Table 5-2. Key DRT inputs and outputs for each of the stages of action are reproduced in Attachment 3, including the water shortage reduction actions, savings assumptions, and implementation rates that are required for East Palo Alto to achieve the required annual demand reductions for each of the six stages of action. At each stage, there are two types of demand-reduction actions identified:

- Restrictions on customer water usage; and
- Consumption reduction actions by East Palo Alto to encourage decreased water usage.

Many actions are implemented across a number of stages, some at increasing implementation levels. Therefore, the actions in Table 5-1 and Table 5-2 are listed as a row under the first stage at which they are implemented. The percentages shown in the tables represent savings of the end uses.

6. COMMUNICATION PROTOCOLS

☑ ***CWC § 10632 (a) (5)***

Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

Each stage of the WSCP is implemented with a formal declaration by the East Palo Alto City Council upon the determination that either: (1) the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use due to a water supply shortage or emergency, or (2) local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use. Procedures for water shortage declaration and termination are detailed below in Section 6.1.1.

Even before formal declaration of a water shortage, a public information program will be activated to provide customers with as much advance notice as possible. Following declaration of a shortage, East Palo Alto customers will be provided with notice of water shortage rules and regulations via a variety of media and communications methods (e.g., citywide electronic newsletter, City Council meetings, social media, etc.).

Coordination between the City and with other public agencies can begin prior to formal declaration of a water shortage and can be accomplished through regular meetings, e-mail group updates, and presentations. The City will coordinate with Palo Alto Park Mutual Water Company and O'Connor Tract Co-operative Water Company to ensure that City residents are aware of which water service area they reside in and the particular water shortage restrictions that apply. In a regional water shortage scenario, the City will use the public outreach resources and materials provided by BAWSCA and/or the SFPUC, in addition to materials developed by the City. Communication and public outreach actions to be taken by the City under each shortage level are detailed in Table 5-2.

6.1.1 <u>Water Shortage Declaration and Termination Procedures</u>

The provisions of each water shortage stage of action are triggered by declaration by the Public Works Director or his designee, as affirmed by the City Council in the form of a resolution, upon the determination that one of the following conditions exist:

1. The SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 5% due to water supply shortages or an emergency, or
2. Local conditions impacting the quantity or quality of the City's water supply warrant the need for a reduction in water use of up to 5%.

The stages of action will become effective after the City Council affirms a particular stage of action via resolution and the City has published notice of this determination. Once effective, the provisions of a water shortage stage of action will stay in effect until: (1) a different stage of action is declared; or (2) the City Council determines that the water shortfall condition no longer exists and the City has published notice of this determination.

After the termination of the water shortage conditions, the City will oversee any remaining termination and WSCP review activities. These activities could include:

- Publicize gratitude for the community's cooperation.
- Restore water utility operations, organization, and services to pre-event levels.
- Document the event and response and compile applicable records for future reference.
- Collect cost accounting information, assess revenue losses and financial impact, and review deferred projects or programs.
- Debrief staff to review effectiveness of actions, to identify the lessons learned, and to enhance response and recovery efforts in the future.
- Update the WSCP, as needed.

7. COMPLIANCE AND ENFORCEMENT

☑ ***CWC § 10632 (a) (6)*** *For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.*

The City has established penalties, fines, restrictions, and criminal charges for excessive water use. The penalties or charges imposed on a customer are listed in Table 7-1.

Staff time dedicated to water conservation and enforcement action will increase with the severity of a supply shortage. Additional duties may be assigned to current City employees or hiring of temporary staff may be considered to meet staffing needs during extreme water shortages.

Table 7-1 Enforcement of Water Use Restrictions and Prohibitions

Violation	Enforcement Action or Penalty
1st	Courtesy notice
2nd	$50 fine
3rd	$100 fine
4th	$200 fine and installation of flow restriction device
5th	Termination of water service, which includes a one hundred dollars ($100.00) charge.

8. LEGAL AUTHORITIES

☑ ***CWC § 10632 (a) (7)***

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

☑ ***CWC § 10632.3***

It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.

As discussed above, the City Council has the authority per Municipal Code 13.24, Article VI to order implementation of water conservation measures in addition to those included in the WSCP. Municipal Code 13.24, Article VI are included as Attachment 1 of this WSCP.

In the event of a local water shortage emergency, the City shall coordinate with San Mateo County within which it provides water supply services for the possible proclamation of a local emergency under California Government Code, California Emergency Services Act (Article 2, Section 8558).

Contact Information: County of San Mateo
Address: 400 County Center, Redwood City, CA 94063
Phone: (650) 363-4000

East Palo Alto is a member of BAWSCA and anticipate coordinating with other Member Agencies via BAWSCA during a water shortage or emergency on the SFPUC RWS.

9. FINANCIAL CONSEQUENCES OF WSCP

☑ ***CWC § 10632 (a) (8)***

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

The City's water utility expenditures can be categorized as fixed or variable expenses. Variable costs are almost entirely related to the costs of purchasing water supplies and other variable system fees and payments, whereas fixed costs primarily relate to the cost of operating and maintaining the distribution system. As customers reduce water usage in response to a drought or call for water conservation, the City will experience a decline in sales and therefore a decline in revenue. In the event of lost revenue, the City may draw upon its cash reserve balances or enact a rate increase. The City may consider the implementation of a drought rate structure or surcharge.

Specifically, the City's water rate components were designed to collect 80% of operating revenues through variable rate charges while approximately 65% of system expenses are considered variable. For each 10% reduction in annual consumption billed, the water system experiences an estimated 1.5% shortfall or approximately $110,000. The City does not maintain specific rate stabilization reserves under a current service concession lease arrangement described below; however, the City Water Enterprise does maintain approximately $2.0M in emergency and other operational reserves.

System rate increases of 1.5% rate are scheduled each July 1st through July 1, 2023 and a rate pass-through is approved in the event SFPUC increases wholesale rates due to drought or other conditions. The City will pass-through a commodity rate increase upon an increase in supplier wholesale water rates.

The City is in a service concession arrangement whereby the City leases the water system to a third-party operator (Veolia). The terms of the lease are currently under an amendment period; however, under current lease terms, Veolia is responsible for operating, maintaining, and managing the water system. Veolia may request increased water rates in order to recover necessary and reasonable costs related to performing water system services, including earning an operational rate of return. As such, Veolia may request drought surcharge or other rate increases under all Shortage Level conditions.

Upon a formal rate increase request by Veolia, the City will implement a Proposition 218 rate process to implement a drought surcharge rate and/or other system rate increase. Additionally, the City may consider the following:

- Shortage Level 1 conditions: Utilize City system reserves for a period up to twelve months prior to implementing drought surcharge or other system rates, and also coordinate with Veolia to defer and reduce system expenses during the drought period to the extent practicable.

- Shortage Level 2 conditions: Utilize City system reserves for a period up to six months prior to implementing drought surcharge or other system rates and also coordinate with Veolia to defer and reduce system expenses during the drought period to the extent practicable.
- Shortage Level 3-6 conditions: Implement drought surcharge rates and/or adjust fixed readiness to serve charges and also coordinate with Veolia to defer and reduce system expenses during the drought period to the extent practicable.

Under each Shortage Level condition, Veolia will provide operational funding necessary until drought surcharge or other rates are implemented, unless City approves a drawdown of system reserves as described above. The City's capital expenditures are funded through separate, non-leveraged, capital surcharges and federal grant programs. The City will adjust capital implementation plans accordingly, or under Shortage Levels 2-6, will consider adjusting capital surcharge rates to ensure cash flow stability in capital program funding. In the event the City leverages the capital surcharges to fund capital improvements, the City will implement rates necessary to ensure adequate debt requirements are met.

10. MONITORING AND REPORTING

☑ ***CWC § 10632 (a) (9)*** *For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.*

Water demands are monitored frequently during emergency water shortages to enable the City to effectively manage the balance between supply and demand. The City plans to increase the frequency of monitoring as it implements more strict stages of its WSCP:

- *Normal Monitoring Procedure*: In normal water supply conditions, production figures are recorded daily, and totals are reported monthly to the City's Departments of Finance and Public Works.
- *Stage 2 and 3 Monitoring Procedure*: When Stage 2 or 3 of the City's WSCP is enacted, weekly production figures are forwarded to the City's Departments of Finance and Public Works. These departments compare the weekly production to the target weekly production to verify that the reduction goal that is in place is being met. Monthly reports are sent to City Council. If reduction goals are not met, the Public Works Director will notify City Council so that corrective action can be taken.
- *Stage 4, 5, and 6 Monitoring Procedure*: When Stage 4 or 5 of the City's WSCP is enacted, the monitoring procedure from Stages 2 and 3 will be continued, with the addition of a daily production report to the Public Works Director. Additionally, regular patrols will be sent out to directly monitor residential water usage and, if necessary, enforce conservation measures.

11. WSCP REFINEMENT PROCEDURES

☑ ***CWC § 10632 (a) (10)*** *Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.*

The City will monitor its water consumption and apply the necessary demand reduction actions to achieve its reduction goals. If the results indicate that these goals are not being attained, then the City will implement additional demand reduction actions. However, if significant additional demand reduction actions are required that are outside of the current shortage level or if new actions (i.e. actions not listed in Table 5-2) becomes necessary, the City will revise this WSCP. The City will consider new demand reduction actions proposed by other city staff, water customers, and/or other interested parties. These actions will go through the same evaluation process as the actions listed in Table 5-2, including usage of the Drought Response Tool to quantify the estimated water savings. New actions that demonstrate to be highly effective in achieving the desired water reduction goals will be prioritized.

Minor updates to the WSCP will be approved by the Public Works Director and significant updates (e.g. new water waste restrictions) will be approved by the City Council. This is to ensure that new minor actions can be implemented quickly at the appropriate water shortage level and avoid delays while recognizing that additional citywide water waste restrictions should be discussed publicly and approved by the City Council.

Below are the steps that the City will take if it determines that the WSCP should be revised:

1. Develop a document that outlines the proposed changes to the WSCP for management review.
2. Public Works Director will review document and provide comments and/or direction for City staff. Public Works Director will also determine if the revised WSCP should be presented to the City Council as an update or if it requires their approval through a resolution. Staff will incorporate the edits and will prepare a revised WSCP including the date of revision. If City Council approval is needed, staff will also prepare a staff report and resolution.
3. City staff will keep a record of all current and previous versions of the WSCP. Staff will also update the City website with the most recent version of the WSCP and at any other location where the WSCP is posted.

12. SPECIAL WATER FEATURE DISTINCTION

☑ ***CWC § 10632 (b)***

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

For purposes of the Water Shortage Contingency Plan, the City defines special water features as objects that are artificially supplied with water, such as ponds, lakes, waterfalls, and fountains. Special water features do not include recreational water features, such as swimming pools and spas as defined in subdivision (a) of Section 115921 of the Health and Safety Code. Prohibitions on water use for special water features are listed separately from those that are recreational water features (Table 5-1).

13. PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

☑ ***CWC § 10632 (c)*** *The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.*

East Palo Alto has informed the public and the appropriate agencies of: (1) its intent to prepare a WSCP, (2) where the WSCP was available for public review, and (3) when the public hearing regarding the WSCP would be held. All notifications were completed in compliance with the stipulations of Section 6066 of the Government Code.

A copy of the adopted 2020 WSCP including any amendments will be provided to the Department of Water Resources (DWR), the California State Library, San Mateo County, and SFPUC within 30 days of the adoption (Attachment 4). An electronic copy of the adopted 2020 WSCP will be submitted to the DWR using the DWR online submittal tool.

A copy of the adopted 2020 WSCP will be available for public review in City Hall during normal business hours and on the East Palo Alto website within 30 days after filing the plan with DWR.

14. REFERENCES

BAWSCA, 2020. *Bay Area Water Supply and Conservation Agency Annual Survey FY 2018-19*, March 2020.

County of San Mateo, 2004. *San Mateo County/Operational Area Emergency Operations Plan, Potable Water Procurement and Distribution Annex*, *3rd Edition*, July 2004.

ATTACHMENT 1

CITY OF EAST PALO ALTO'S MUNICIPAL CODE 13.24, ARTICLE VI

Article VI. - Conservation Plan

13.24.220 - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meaning ascribed to them in this section, except where the context clearly indicates a different meaning:

"Excess runoff" means water accumulation on streets, gutters, neighboring properties or other surfaces in an amount to cause flow.

"New development" means any addition, extension, conversion or enlargement of an existing structure or any new construction requiring a building permit.

"Water user" means any person, customer or property served within the incorporated boundaries of the city and the area outside the city boundary served by the city water department.

(Ord. 253 § 6.1, 2001)

13.24.230 - Application.

This chapter shall apply to all water users.

(Ord. 253 § 6.2, 2001)

13.24.240 - Water user responsibility.

Water users are deemed to have under control at all times their water distribution facilities and to know the manner and extent of their water use and excess runoff. In multiple dwellings, the owner is the water user in control of the premises and is in control and responsible for water usage.

(Ord. 253 § 6.3, 2001)

13.24.250 - Phase I shortages.

A phase I shortage is declared and conservation measures listed in this section are implemented when the city engineer declares a drought condition or the city of San Francisco formally notifies the city the supply from the Hetch Hetchy watershed has been reduced by at least twenty percent (20%). No water user within the city and the service area of the city water department shall knowingly make, cause use or permit the use of water for residential, commercial, industrial, agricultural or any other purpose in a manner contrary to this chapter or in any amount in excess of that use permitted by the conservation stages designated in this chapter. The conservation methods are as follows:

A. No water user shall cause or permit any water furnished to any property within the city and the city water department service area to run or to escape from any hose, pipe, valve, faucet, sprinkler or irrigation device onto any sidewalk, street or gutter or to otherwise escape from the property if such running or escaping can reasonably be prevented. If a break or leak occurs within the customer's plumbing or private distribution system, it shall be presumed that a period of forty-eight (48) hours after the consumer discovers such a break or leak or receives notice from the city water department of such a break or leak, whichever occurs first, is a reasonable time within which to correct such a break or leak. If such a break or leak is not corrected after forty-eight (48) hours, it will be a violation of this chapter.
B. Commercial and noncommercial watering of grass, lawns groundcover, open ground, shrubbery, crops, gardens and trees, including agricultural irrigation, in a manner or to an extent which allows substantial amounts of excess water to run off the area being watered is not permitted. A minimum amount of runoff that is a natural consequence of

conservation watering, either by hand or mechanical sprinkling facilities is permitted so long as such runoff is not excess as defined.

C. Lawn watering, landscape irrigation and watering of public and private recreation facilities are to be done only between six p.m. and eight a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time.

D. Agricultural water users and commercial nurseries shall conduct watering between six p.m. and eleven a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time. Watering of livestock is permitted at any time.

E. There shall be no washing down of sidewalks, walkways, driveways, parking lots and other paved surfaces, except to alleviate immediate health, fire or sanitary hazards.

F. Restaurants may not serve water to their customers, except on specific request of the customer.

G. It is unlawful to remove, replace, alter or damage any water meter or any components thereof, including, but not limited to, the meter face, its dials or other water usage indicators and any flow-restricting devices installed.

H. Water from fire hydrants is not used for any purpose other than to fight fires or for other activities where such use is immediately necessary to maintain the health, safety and welfare of the residents of the city and customers of the city water system.

I. Schools, golf courses, governmental agencies, city parks and cemeteries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedules.

J. Washing of motor vehicles, trailers, boats and other equipment is done only with a hand-held bucket, or hose equipped with a positive shut-off nozzle for quick rinse, except that washing may be done with reclaimed wastewater or by a commercial car wash using recycled water.

K. No water is used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures, unless such water is part of a recycling system.

L. The filling or replenishment of swimming pools is permitted, but the property owner will be liable for any use of allotted water in excess of the phase II or phase Ill requirements.

M. The owner and operator of every hotel, motel, inn, guesthouse and short-term commercial lodging shall post a notice of water shortage and any necessary compliance measures.

(Ord. 253 § 6.4, 2001)

13.24.260 - Phase II shortages.

A. A phase II shortage is declared by the city engineer and the following conservation measures are implemented when the city of San Francisco notifies the city the Hetch Hetchy watershed has been reduced by at least forty percent (40%):

   1. Conservation measures listed for a phase I shortage are in effect, except that the restrictions on watering lawns, landscapes and other turf area are modified to limit the watering only once every third day between the hours of six p.m. and six a.m.

   2. Agricultural and commercial nurseries and golf courses are prohibited from watering lawns, landscapes, or commercial stocks more often than every other day and between the hours of ten a.m. and six p.m., except that there is no restriction of watering utilizing reclaimed wastewater.

B. No customer whose water is supplied by the city shall make, cause, use or permit the use of water for any purpose in an amount in excess of ninety percent (90%) of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year.

C. Single-family residential customers supplied water by the city are not required to reduce consumption below fifteen (15) billing units per month during phase II.

(Ord. 253 § 6.5, 2001)

13.24.270 - Phase III shortages.

A. A phase Ill shortage is declared by the city engineer and the following conservation measures are implemented when the city of San Francisco notifies the city the Hetch Hetchy watershed has been reduced by at least sixty percent (60%):

1. Conservation measures listed for a phases I and II shortages are in effect, except that there is no watering of residential lawns, landscaping and other turf areas at any time except by bucket
2. Agricultural, commercial nurseries, golf courses, parks and other public open spaces and commercial landscaped areas are prohibited from watering more often than every third day and between the hours of ten a.m. and six p.m., except that there is no restriction on watering using reclaimed wastewater.

B. No customer whose water is supplied by the city shall make, cause, use or permit the use of water for any purpose in an amount in excess of eighty percent (80%) of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year.

C. Single-family residential customers supplied water by the city are not required to reduce consumption below ten billing units per month during phase III.

(Ord. 253 § 6.6, 2001)

13.24.280 - Exceptions and relief from compliance.

A. A water user may file an application for relief from this chapter. The city engineer shall develop such procedures as he/she considers necessary to resolve such applications in accordance with the terms of this section and shall, upon the filing by a water user of an application for relief, take such steps as he/she deems reasonable to resolve the application for relief. The city engineer may delegate his/her duties and responsibilities under this section as appropriate.

B. The application for relief may include a request that the water user be relieved, in whole or in part, from the water use curtailment of this chapter.

C. In determining whether to grant relief and the nature of any relief, the city engineer shall take into consideration the following:

1. Whether any additional reduction in water consumption will result in unemployment;
2. Whether additional members have been added to the household;
3. Whether any additional landscaped property has been added to the property since the corresponding billing period of the prior calendar year;
4. Changes in vacancy factors for multi-family housing;
5. Increased numbers of employees in commercial, industrial and governmental offices;
6. Increased production requiring increased process water;
7. Water uses during construction;
8. Adjustments to water use caused by emergency health and safety hazards;
9. First filling of a permit-constructed swimming pool; and
10. Water use necessary for reasons related to family illness or health.

D. In order to be considered, an application for relief must be in writing, filed with the city engineer within twenty (20) days from the date the provision from which relief is sought becomes applicable to the applicant. No relief is granted unless the water user shows that he/she has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief is granted to any water user who, when requested by the city engineer, fails to provide any information necessary for resolution of the water user's application for relief. The decision is issued within fifteen (15) days and provided to the water user.

(Ord. 253 § 6.7, 2001)

13.24.290 - Notices and penalties.

The city will impose the following penalties to consumers in violation of this chapter:

A. The city water department shall give violators of this chapter a courtesy notice of the violation. Upon second and subsequent violations, the violator shall receive a citation and fine, respectfully.

B. The first citation shall specify the nature of the violation, the date on which it occurred and the corrective action taken. Upon a second citation, the water user is charged with an infraction and is subject to the following fines:

   1. For the first violation, fifty dollars ($50.00);
   2. For the second violation, one hundred dollars ($100.00);
   3. For the third violation, two hundred dollars ($200.00), along with the installation of a flow restrictor at the customer's expense. A third violation constitutes a misdemeanor;
   4. For a fourth violation, termination of water service. The charge for water service termination and restoration is one hundred dollars ($100.00).

C. For each violation by any water user of the water use curtailment provisions of this section, a surcharge is imposed in an amount equal to twenty-five percent (25%) of the portions of the water bill that exceed the respective percentages. This surcharge is paid to the city and is deposited in the water revenue fund as partial payment for the water department's conservation plan for that user.

(Ord. 253 § 6.8, 2001)

13.24.300 - Hearing regarding violations.

A. Any water user receiving notice of a second or subsequent violation of this chapter shall have a right to a hearing by the city engineer.

B. The water user's written request for a hearing must be received within ten days of the issuance of the notice of violation. This request shall stay installation of a flow-restricting device on the water user's premises and the imposition of any surcharge until the city engineer renders his/her decision. His/her decision is issued within fifteen (15) days after the hearing, and a copy is provided to the water user.

C. The decision of the city engineer may be appealed to the city manager by the water user filing with the city manager a written request within fifteen (15) days of receipt of the decision from the city engineer. Filing of such a request stays the implementation of any surcharge or installation of a flow-restrictor.

D. The appeal hearing will be scheduled to occur within a reasonable period of time following the filing of the appeal. No formal rules of evidence apply. All evidence customarily relied upon by reasonable persons in the conduct of serious business affairs will be allowed, and the water user may present any such evidence which shows the alleged wasteful water use has not occurred. The decision of the city manager will be given in writing to the water user within fifteen (15) days after the appeal hearing, and that decision is final.

(Ord. 253 § 6.9, 2001)

13.24.310 - Additional measures.

The city council may order implementation of water conservation measures in addition to those set forth in this chapter. Such additional measures are implemented by resolution published one time in a daily newspaper of general circulation covering the service area of the city water department. Any prohibitions on the use of water shall become effective immediately upon publication. The application of surcharges shall commence one month after the date the curtailment becomes effective.

(Ord. 253 § 6.10, 2001)

13.24.320 - Effect on public health and safety.

Nothing in this chapter is construed to require the city engineer to curtail water to any user when such water is required by that customer to maintain an adequate level of public health and safety. The rights of the city under this chapter are in addition to any other rights of the city under any other applicable laws.

(Ord. 253 § 6.11, 2001)

ATTACHMENT 2

ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Each year the SFPUC evaluates the amount of total water storage expected to occur throughout the RWS and compares it to expected demands. This annual Water Supply and Demand Assessment (WSDA) is described in the subsections below, which are organized by the sequential steps the SFPUC takes to conduct the assessment each year and reference the relevant California Water Code requirements for a WSDA.[1]

The SFPUC's annual WSDA is a robust planning system that considers a range of input factors unique to the SFPUC's water supplies and system configuration while also providing the flexibility to consider new factors. Traditional surface water supplies from the SFPUC's up country, East Bay, and Peninsula reservoirs are the backbone of the water supply, but the SFPUC extends and protects those supplies in many additional ways by: (1) partnering with the community to help save water through robust conservation programs; (2) minimizing the need for additional water to serve new developments through an onsite water reuse program; (3) recycling wastewater resources to deliver water for large non-potable uses; (4) utilizing local groundwater supplies to supplement surface water supplies; (5) investigating new, alternative water supply options such as purified water and desalination; and (6) investing in innovations that allow for creative solutions to meet diverse needs. These efforts help the SFPUC conserve water and diversify supplies to reduce likelihood of a water shortage condition.

1.1 DEMAND ASSESSMENT [WATER CODE SECTION 10632(A)(2)(B)(I)]

To calculate unconstrained customer demand for the purpose of an annual WSDA, the SFPUC collects information on both the retail and wholesale system demands. Retail customer demand is estimated based on the best available information to date, and typically includes the previous year's demands as well as consideration of current demand use patterns or other conditions impacting demands, such as weather and growth. Each year, in February, the SFPUC receives from BAWSCA a report of estimated Wholesale Customer demand for the upcoming year. BAWSCA typically estimates unconstrained demands for the Wholesale Customers by using total water purchased by those customers in the prior year along with other relevant information. Relatively small demands from the two additional wholesale customers not part of the WSA are estimated based on the best available information to date, and typically includes the previous year's demands as well as consideration of current demand use patterns or other conditions impacting demands, such as weather and growth.

1.2 SUPPLY ASSESSMENT [WATER CODE SECTIONS 10632(A)(2)(B)(II) AND 10632(A)(2)(B)(V)]

The RWS collects water from the Tuolumne River watershed in the Sierra Nevada and from local reservoirs in the Alameda and Peninsula watersheds. The RWS draws an average of 85 percent of its supply from the Tuolumne River watershed. This water feeds into an aqueduct system delivering water 167 miles by gravity to Bay Area reservoirs and customers. The remaining RWS supply is drawn from local surface waters in the Alameda and Peninsula watersheds. The split between these resources varies from year to year depending on the water year hydrology and operational circumstances.

To project and evaluate water supply conditions, the SFPUC uses measurements of precipitation and snowpack in the watersheds above Hetch Hetchy, Cherry, and Eleanor Reservoirs. Snowpack conditions are evaluated regularly by the Cooperative Snow Survey (conducted by the SFPUC in partnership with state and federal agencies) beginning in late January of each year. The SFPUC also estimates snowpack conditions using information from airborne snow observatory (ASO) and other sources. The SFPUC maintains a hydrologic model

[1] California Water Code section 10632(a)(1) requires "*the analysis of water supply reliability conducted pursuant to Section 10635.*" Additional information about the SFPUC's water supply reliability analysis can be found in Chapter 7 of the SFPUC's 2020 UWMP.

of the watersheds that uses this information to project expected runoff for the coming year. This process also includes a statistical analysis of additional expected precipitation. In addition to projected runoff, the determination of projected available water supply also takes into account stored water throughout the RWS, water acquired by the SFPUC from non-SFPUC sources, inactive storage, reservoir losses, and allowances for carryover storage.

Additionally, the SFPUC accounts for groundwater provided by the San Francisco Groundwater Supply Project for the in-City retail system and recycled water provided for irrigation at Harding Park, Fleming and Sharp Park Golf Courses.

The RWS relies on precipitation and snowmelt captured and stored in its reservoirs. During droughts, water supply deliveries can exceed inflows, such that water stored in previous years is relied upon to meet demands. Because of the importance of carry-over storage, the SFPUC constantly monitors and evaluates water supply conditions in the RWS. Look-ahead forecasts are updated as a year's hydrology and operations change. Generally, in early winter of any year, SFPUC staff can begin providing a forecast of water supply conditions for the upcoming year based on known and anticipated winter and spring precipitation and snowpack. The predictive power of this forecast improves greatly through the spring. The annual precipitation, snowmelt, and carry-over storage together constitute the SFPUC's reservoir storage condition. Using data for each of these factors, the SFPUC can determine whether the reservoir system will be capable of serving full deliveries to its customers. Section 1.3 describes the system modeling SFPUC conducts

Table 0-1 shows the availability of RWS supplies for retail customers and Wholesale Customers in normal years. Table 0-2 shows the current and projected RWS supply needs to meet retail and wholesale demands based on information and projections presented in the SFPUC's 2020 UWMP.

The SFPUC sells water to 26 of its 28 wholesale customers under the terms of the 25-year contract known as the Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County (WSA) and associated individual water sales contracts with each Wholesale Customer. The WSA carries forward the SFPUC's "Supply Assurance" of 184 million gallons per day (mgd) to the Wholesale Customers. The SFPUC has agreed to deliver water to the Wholesale Customers up to the amount of the Supply Assurance, and this agreement is perpetual and survives the expiration of the WSA. The Supply Assurance is, however, subject to reduction due to water shortage, drought, scheduled RWS maintenance activities, and emergencies. The WSA also describes the temporary limitation on water sales established by the Phased Water System Improvement Plan (WSIP) in 2008. This "Interim Supply Limitation" (ISL) limits water sales from the RWS to an average annual amount of 265 mgd. The WSA allocations the ISL between the SFPUC's retail customers and Wholesale Customers as follows:

- Wholesale supply allocation: 184 mgd
- Retail supply allocation: 81 mgd[2]

Table 0-1. Regional Water System Supply Availability in Normal Years (mgd)

RWS Supply Allocation	Actual	Projected				
	2020	2025	2030	2035	2040	2045
Retail Customers[a, b]	81	81	81	81	81	81
Wholesale Customers[c, d]	184	184	184	184	184	184

[2] Groveland CSD is considered a retail customer of the SFPUC. Thus, RWS supplies to Groveland CSD are accounted for in the retail supply allocation of 81 mgd.

Total RWS Supplies	265	265	265	265	265	265

a Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, if these alternative supplies are not available, up to 81 mgd of RWS supply could be used in normal years.

b Groveland CSD is reported as a wholesale customer for the purposes of this 2020 UWMP, but it is considered a retail customer of the SFPUC solely for purposes of allocating RWS supplies between retail and Wholesale Customers. Its demands would be met by the retail supply allocation of 81 mgd.

c Projected Wholesale Customer deliveries are limited to 184 mgd, including the demands of the Cities of San Jose and Santa Clara, which are supplied on a temporary and interruptible basis, with their total supply not exceeding 9 mgd assuming supply is available (decision to be made by end of 2028).

d Cordilleras MWC is not a party to the WSA, and it is not included in the wholesale supply allocation of 184 mgd. The demands of Cordilleras MWC are minor (projected to be less than 0.01 mgd) and are anticipated to be met with RWS supplies through 2045.

Table 0-2. Regional Water System Supply Utilized in Normal Years (mgd)

RWS Supply Allocation	Actual	Projected				
	2020	2025	2030	2035	2040	2045
Retail Customers[a, b]	66.5	67.2	67.5	68.6	70.5	73.7
Wholesale Customers[c, d]	132.1	146.0	147.9	151.9	156.3	162.8
Total RWS Supplies	198.6	213.2	215.4	220.5	226.8	236.5

a Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, if these alternative supplies are not available, up to 81 mgd of RWS supply could be used in normal years.

b Groveland CSD is reported as a wholesale customer for the purposes of this 2020 UWMP, but it is considered a retail customer of the SFPUC solely for purposes of allocating RWS supplies between retail and Wholesale Customers. Its demands would be met by the retail supply allocation of 81 mgd.

c Projected Wholesale Customer deliveries are limited to 184 mgd, including the demands of the Cities of San Jose and Santa Clara, which are supplied on a temporary and interruptible basis, with their total supply not exceeding 9 mgd assuming supply is available (decision to be made by end of 2028).

d Cordilleras MWC is not a party to the WSA, and it is not included in the wholesale supply allocation of 184 mgd. The demands of Cordilleras MWC are minor (projected to be less than 0.01 mgd) and are anticipated to be met with RWS supplies through 2045.

1.3 INFRASTRUCTURE CONSIDERATIONS [WATER CODE SECTION 10632(A)(2)(B)(III)]

On an ongoing basis, the SFPUC's Hetch Hetchy Water and Power, Water Supply and Treatment Division, and Hydrology and Water Systems group conduct analyses of the RWS that incorporate planned facility outages and multiple levels of projected system demands to evaluate and plan for potential water delivery constraints. These groups meet quarterly to share plans and coordinate how facility outages, changes in service area demand, wet or dry weather, and other variables shape the operating plans each year. Facility outages due to maintenance or upgrades are coordinated in an adaptive manner to respond to changes as they occur. For new water supplies or new capital projects related to supply distribution, impacts on the system are evaluated extensively prior to initiation of any changes. Results from these modeling efforts are considered in the annual WSDA.

1.4 SYSTEM MODELING [WATER CODE SECTION 10632(A)(2)(B)(IV)]

To proactively plan for conditions that would result in a shortage of water supplies, the SFPUC models conditions using a hypothetical drought that is more severe than what the RWS has historically experienced. This drought sequence is referred to as the "design drought" and serves as the basis for planning and modeling of future scenarios. The design drought consists of an 8.5-year sequence of dry conditions.

In applying its water supply planning methodology, the SFPUC performs an initial model simulation of the system for the design drought sequence and then reviews the ability of the system to deliver water to the service area through the entire design drought sequence. If the projected water supply runs out before the end of the design drought sequence in the initial model run, system-wide water supply rationing is added and the scenario is re-run. This process continues iteratively until a model simulation of the system is achieved in which the water supply in storage at the end of the design drought sequence is brought to the system “dead pool,” where no additional storage is available for delivery (currently simulated as 96,775 acre-feet). Drawing system storage down to the dead pool without going below it indicates that water supply delivery, including the adjusted amount of rationing, is maintained through the design drought sequence.

Estimated rationing levels and corresponding storage threshold values can then be used to simulate the operation of the system through the historical record of hydrology, or to evaluate system water supply conditions during an ongoing drought. While the design drought sequence does not occur in the historical hydrology, the rationing and storage threshold values that are adjusted to allow a system configuration to maintain water delivery through the design drought sequence can be used to evaluate system performance in the historical record, or as a comparison for real-time system conditions. Through use of this planning method, the SFPUC can simulate a response to declining water supply in storage that is appropriate for the system conditions being evaluated.

The SFPUC plans its water deliveries using indicators for water supply rationing that are developed through analysis with the design drought sequence. As a result, the SFPUC system operations are designed to provide sufficient carry-over water in SFPUC reservoirs to continue delivering water, although at reduced levels, during multiple-year droughts.

1.5 DECISION-MAKING PROCESS [WATER CODE SECTION 10632(A)(2)(A)]

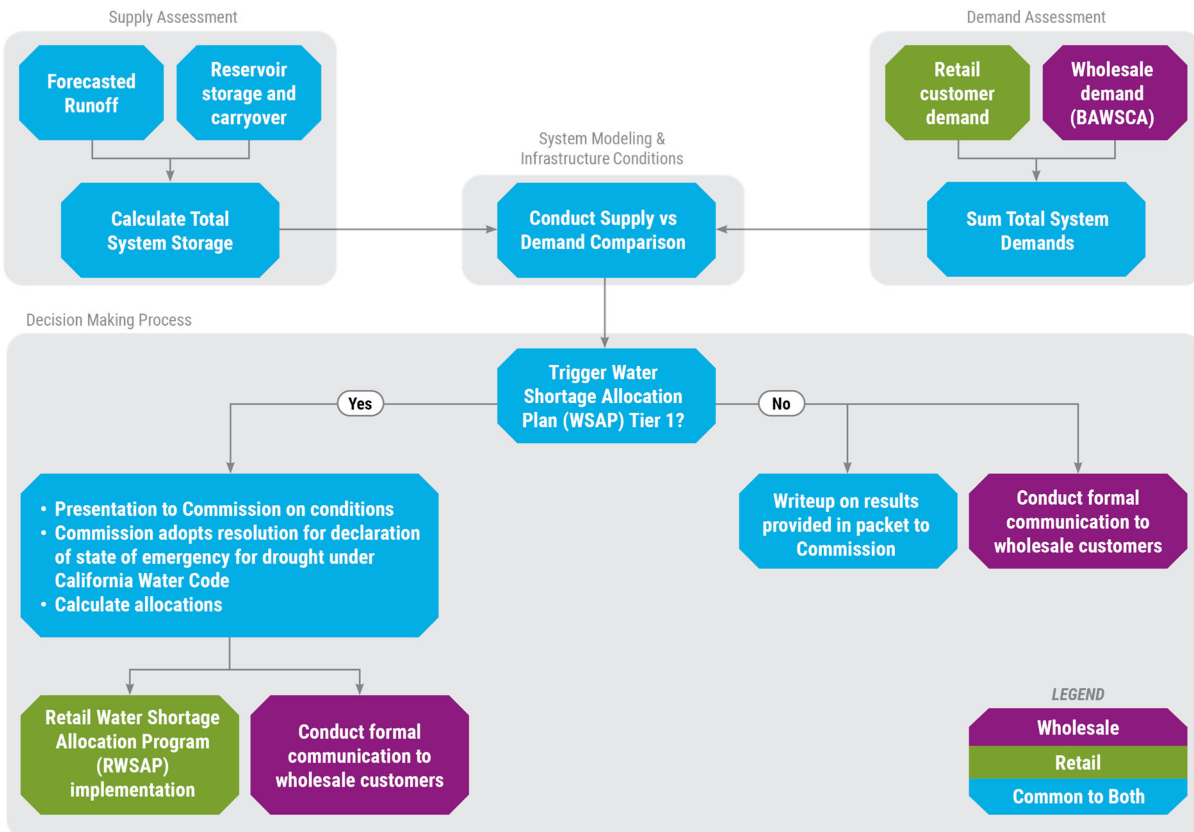
Regardless of the expectation of shortage conditions, as part of the normal course of business, the SFPUC provides a water supply condition update to its executive team every two weeks throughout the year. The SFPUC also provides water supply estimates to its Wholesale Customers on a monthly basis beginning February 1. A Wholesale Customer Annual Meeting is held in the last week of February at which the SFPUC makes a presentation on current water supply conditions and forecasts. The last snow survey of the season typically occurs within the first week of April, followed by a runoff forecast to determine total system storage expected as of July 1. By the middle of April, the SFPUC sends a formal letter to the Wholesale Customers summarizing the water supply availability for the coming year.

If the RWS appears incapable of meeting system-wide demand due to drought, the SFPUC is expected to declare a water shortage by March 31 of that drought year. The General Manager, or designee, is responsible for declaring such a shortage. A presentation would be made to the Commission as part of the General Manager’s report, showing conditions of precipitation to date, snowpack, and storage levels with more information as necessary depending on the particulars of the supply forecast. Depending on the level of shortage, the Commission may adopt a resolution declaring a water shortage emergency under the California Water Code, or lesser actions such as a call for voluntary conservation efforts.

Prior to the initiation of any water delivery reductions to its retail customers, whether it be initial implementation of delivery reductions or implementing a different water shortage level, the SFPUC will outline a drought response plan to address the following: the water supply situation; proposed water use reduction objectives; alternatives to water use reductions; methods to calculate water use allocations and adjustments; compliance methodology and enforcement measures; and budget considerations. Details on the expected allocation program are described further in Section **Error! Reference source not found.**. This drought response plan will be presented at a regularly scheduled SFPUC Commission meeting and advertised in accordance with the requirements of Section 6066 of the California Government Code.

The overall WSDA process is described visually in the flowchart presented in Figure 0-1.

Figure 0-1: Water Supply and Demand Assessment Process



ATTACHMENT 3

DROUGHT RESPONSE TOOL QUANTITATIVE ASSESSMENT

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of East Palo Alto

Enter Agency Information	
Agency Name	City of East Palo Alto
Total Population Served	25,331
Number of Residential Accounts	3,542
Number of Commercial, Industrial, and Institutional (CII) Accounts	205
Number of Dedicated Irrigation Accounts	0
Baseline Year(s)	2018
Percentage of Residential Indoor Use During Minimum Month (%)	100%
Percentage of CII Indoor Use During Minimum Month (%)	100%
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool
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1 - Home

City of East Palo Alto

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

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Drought Response Tool

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2 - Input Baseline Year (2018) Water Use

City of East Palo Alto

Input Baseline Year (2018) Production and Water Use

Units: (mg)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (mg)	Residential Water Use (mg)	CII Water Use (mg)	Dedicated Irrigation Water Use (mg)	Non-Revenue Water Use (mg)	Total R-GPCD	Comments
January	42	29	8	0	6	37	
February	39	28	7	0	4	40	
March	43	27	7	0	9	35	
April	43	27	8	0	9	35	
May	52	30	9	0	13	38	
June	54	34	10	0	10	45	
July	57	35	11	0	12	45	
August	55	35	13	0	7	45	
September	50	35	13	0	2	46	
October	51	32	10	0	9	41	
November	46	31	10	0	5	41	
December	40	28	7	0	5	36	

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Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

3 - Baseline Year (2018) Water Use Profile

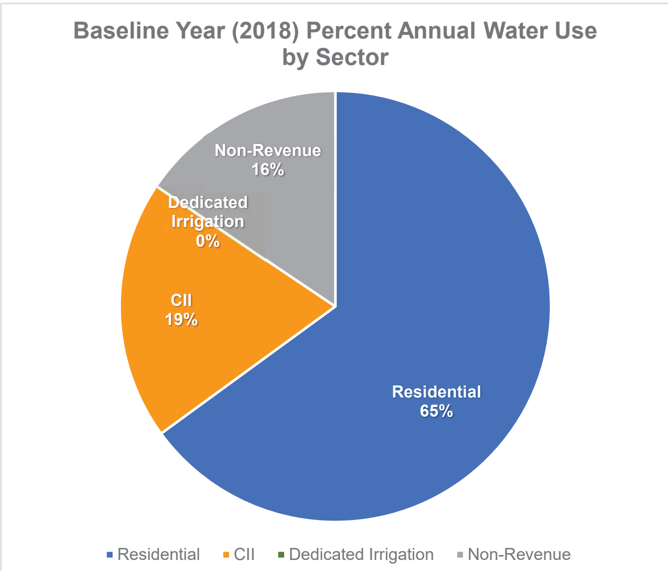
City of East Palo Alto

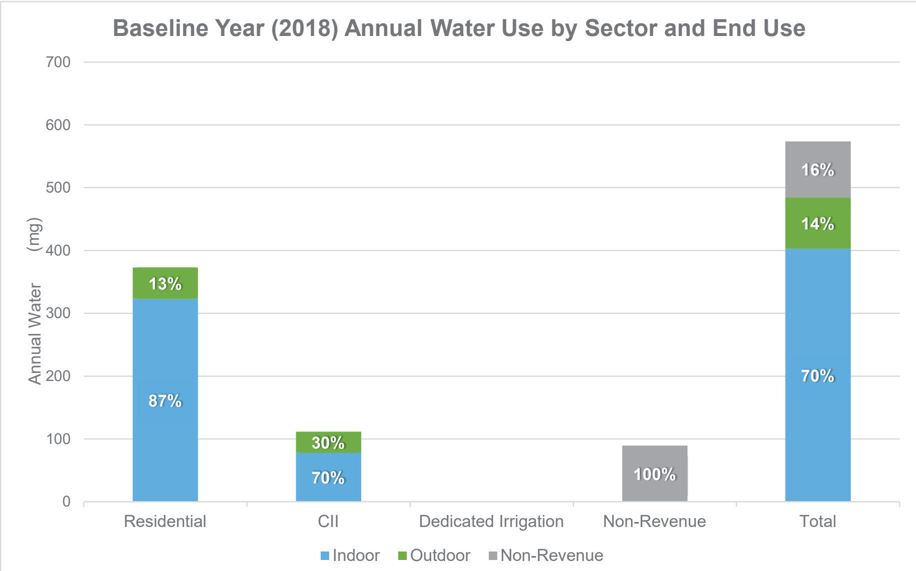
Baseline Year (2018) Annual Water Use Summary

Units: (mg)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

Water Use	Total Production (mg)	Water Use (mg)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	574	373	112	0	89	
Total Indoor	402	324	79	--	--	
Total Outdoor	82	49	33	0	--	
Total Non-Revenue	89	--	--	--	89	
Total Indoor %	70%	87%	70%	0%	--	
Total Outdoor %	14%	13%	30%	100%	--	
Total Non-Revenue %	16%	--	--	--	100%	





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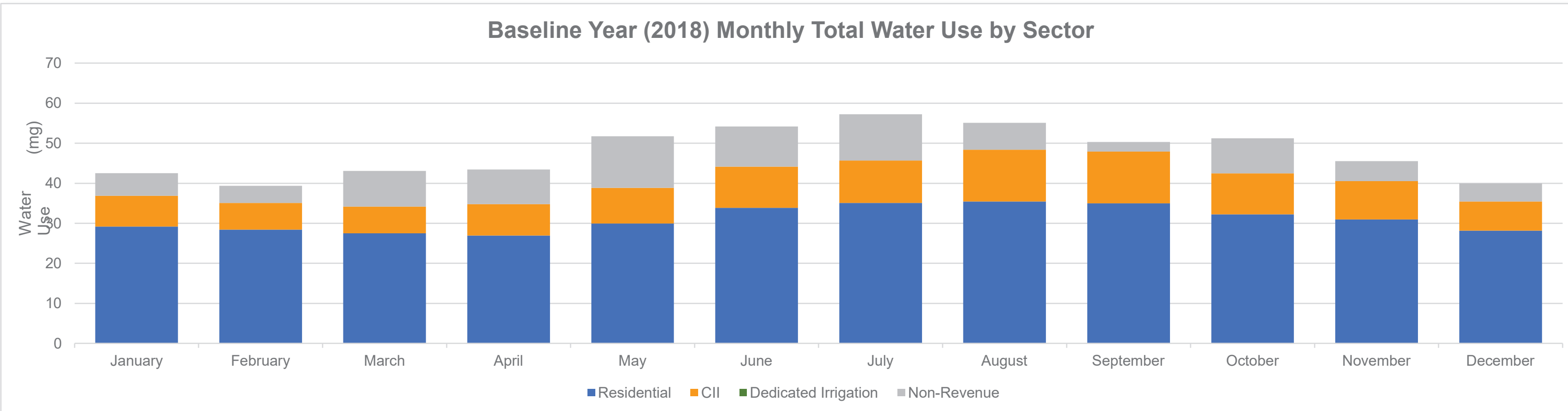
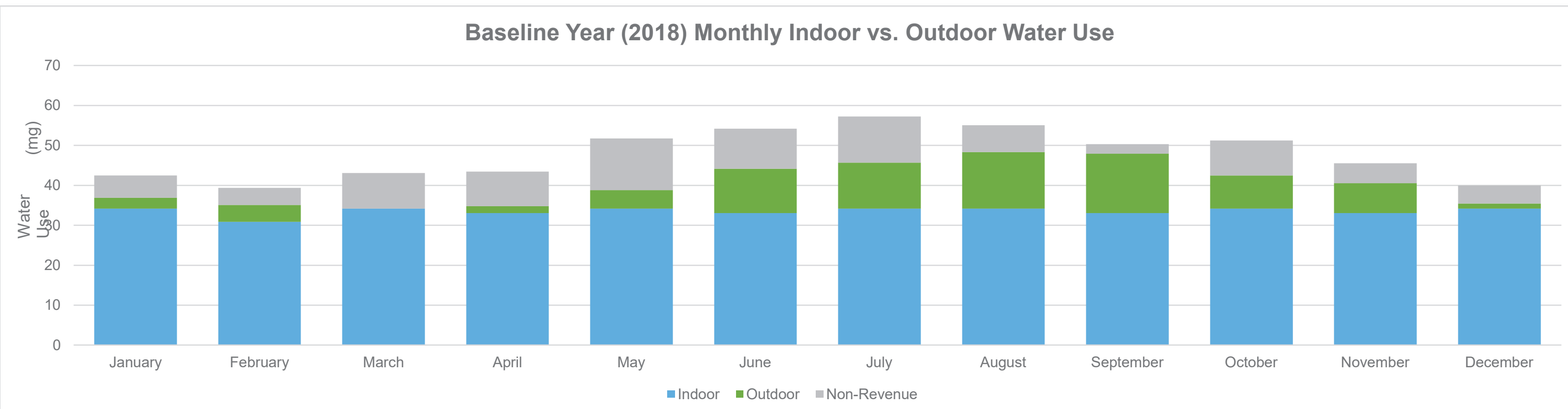
3 - Baseline Year (2018) Water Use Profile

City of East Palo Alto





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4 - Drought Response Actions - Stage 1

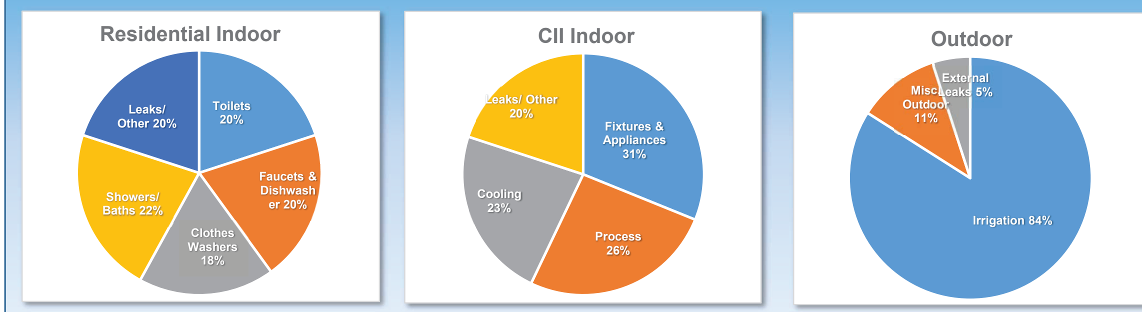
City of East Palo Alto

Maximum Savings Potential

Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.

Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**42%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector



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4 - Drought Response Actions - Stage 1

City of East Palo Alto

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Possible Mandatory Prohibitions**	All Outdoor	☐	14%	90%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	17%	**40%**	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	**40%**		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	**40%**		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	**40%**	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☑			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☑			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☑	50%	**40%**	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

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Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

4 - Drought Response Actions - Stage 1

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Agency Drought Actions / Restrictions						
▶ Agency Actions						
Media Campaign, Newspaper Articles, Website	All	☑	**15%**	**30%**	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	☑		50%		--
Water Efficiency Workshops, Public Events	All	☐	0.5%	25%		--
Water Bill Inserts	All	☐	**5%**	100%		--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
▶ Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	☐	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 48 hours	External Leaks	☐	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

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4 - Drought Response Actions - Stage 1

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
Agency Drought Actions / Restrictions						
Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	**7%**	**85%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	**7%**	**85%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

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4 - Drought Response Actions - Stage 1

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

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5 - Estimated Water Savings - Stage 1

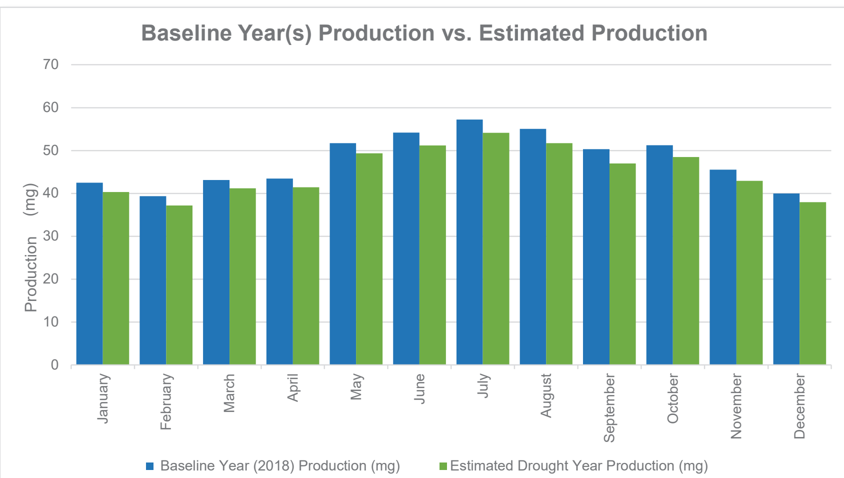
City of East Palo Alto

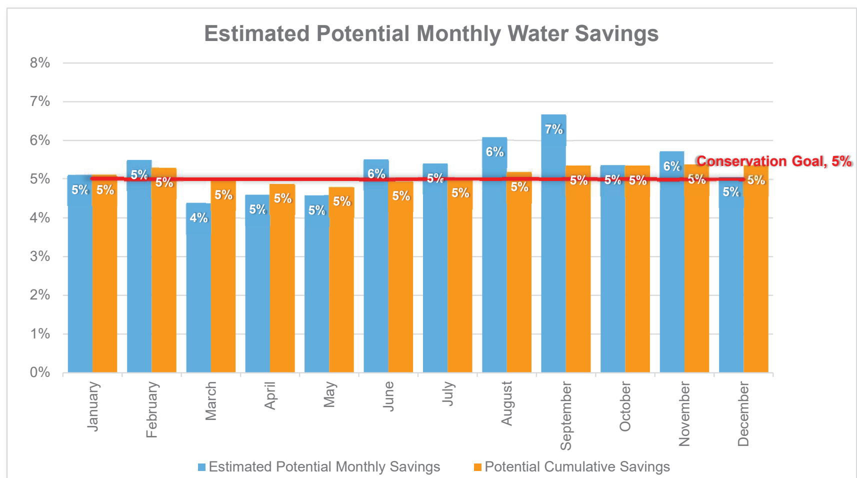
Estimated Monthly Water Use and Savings Summary

Units: (mg)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	40	5%	5%	5%	
February	39	37	5%	5%	5%	
March	43	41	4%	5%	5%	
April	43	41	5%	5%	5%	
May	52	49	5%	5%	5%	
June	54	51	6%	5%	5%	
July	57	54	5%	5%	5%	
August	55	52	6%	5%	5%	
September	50	47	7%	5%	5%	
October	51	48	5%	5%	5%	
November	46	43	6%	5%	5%	
December	40	38	5%	5%	5%	





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4 - Drought Response Actions - Stage 2

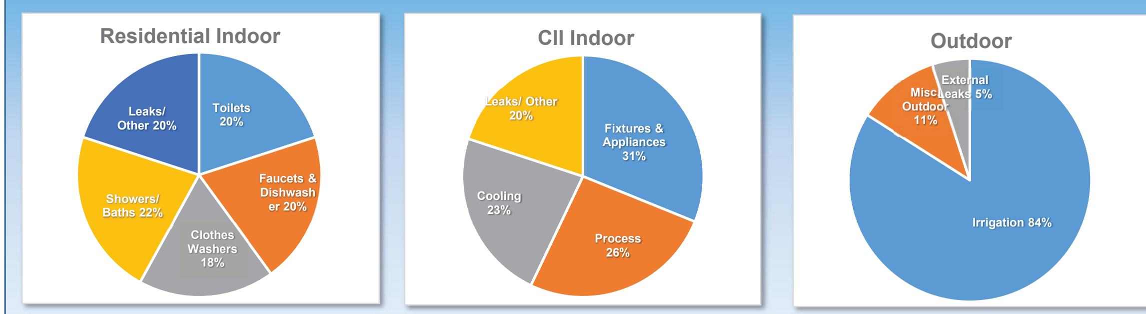
City of East Palo Alto

Maximum Savings Potential

Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.

Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**42%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector



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4 - Drought Response Actions - Stage 2

City of East Palo Alto

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**65%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	40%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☑			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☑			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	40%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--

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4 - Drought Response Actions - Stage 2

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Agency Drought Actions / Restrictions						
▶ Agency Actions						
Media Campaign, Newspaper Articles, Website	All	☑	**15%**	**45%**	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	☑		50%		--
Water Efficiency Workshops, Public Events	All	☐	0.5%	25%		--
Water Bill Inserts	All	☑	**5%**	100%		--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☑			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
▶ Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	☐	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 48 hours	External Leaks	☐	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

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4 - Drought Response Actions - Stage 2

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
Drought Response Actions						
▶ Agency Drought Actions / Restrictions						
▶ Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☑	38%	**65%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☑	38%	**65%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

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4 - Drought Response Actions - Stage 2

City of East Palo Alto

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

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5 - Estimated Water Savings - Stage 2

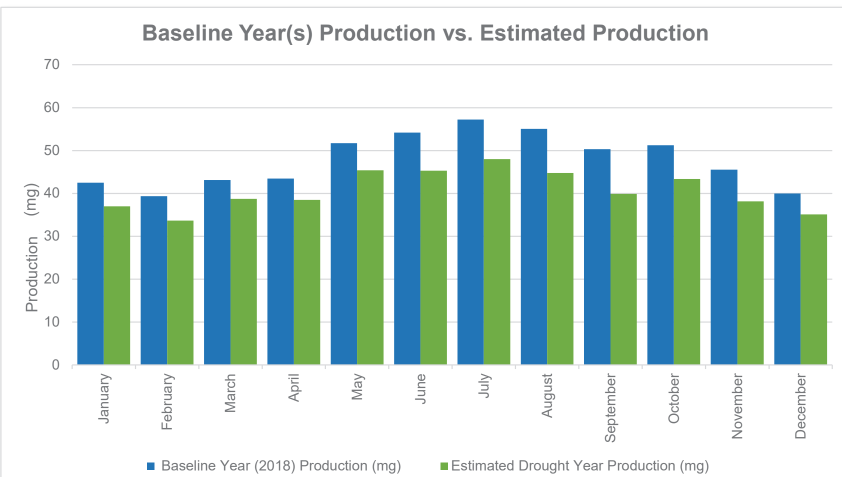
City of East Palo Alto

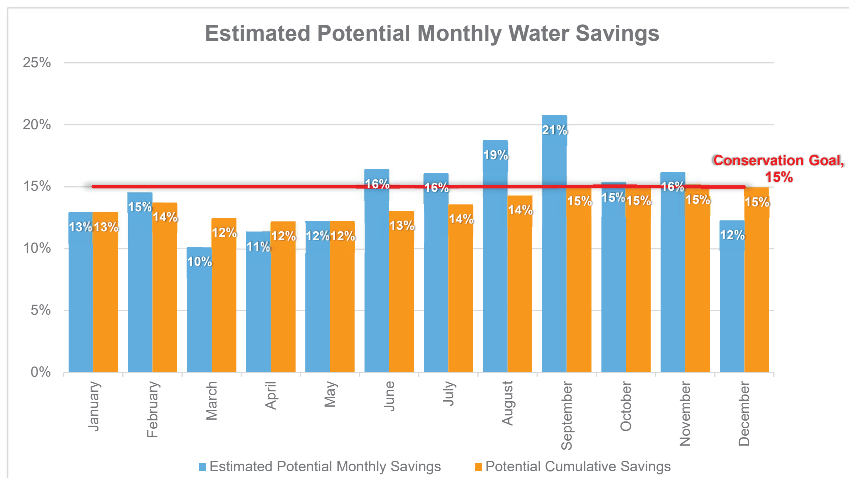
Estimated Monthly Water Use and Savings Summary

Units: (mg)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	37	13%	13%	15%	
February	39	34	15%	14%	15%	
March	43	39	10%	12%	15%	
April	43	38	11%	12%	15%	
May	52	45	12%	12%	15%	
June	54	45	16%	13%	15%	
July	57	48	16%	14%	15%	
August	55	45	19%	14%	15%	
September	50	40	21%	15%	15%	
October	51	43	15%	15%	15%	
November	46	38	16%	15%	15%	
December	40	35	12%	15%	15%	





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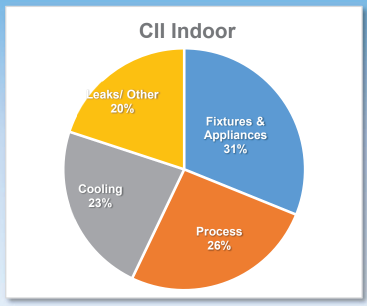
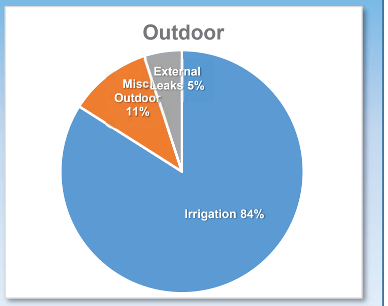
4 - Drought Response Actions - Stage 3

City of East Palo Alto

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**42%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





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4 - Drought Response Actions - Stage 3

City of East Palo Alto

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	40%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☑			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☑			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	40%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--

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City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Agency Drought Actions / Restrictions						
▶ Agency Actions						
Media Campaign, Newspaper Articles, Website	All	☑	**15%**	**60%**	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	☑		50%		--
Water Efficiency Workshops, Public Events	All	☐	0.5%	25%		--
Water Bill Inserts	All	☑	**5%**	100%		--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☑			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☑			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
▶ Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	☐	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 48 hours	External Leaks	☐	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

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4 - Drought Response Actions - Stage 3

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☑	79%	75%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☑	79%	75%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

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4 - Drought Response Actions - Stage 3

City of East Palo Alto

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

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5 - Estimated Water Savings - Stage 3

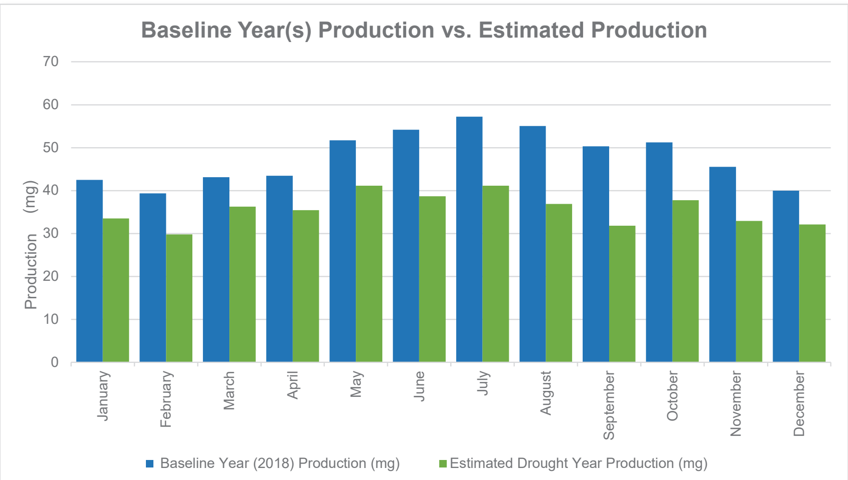
City of East Palo Alto

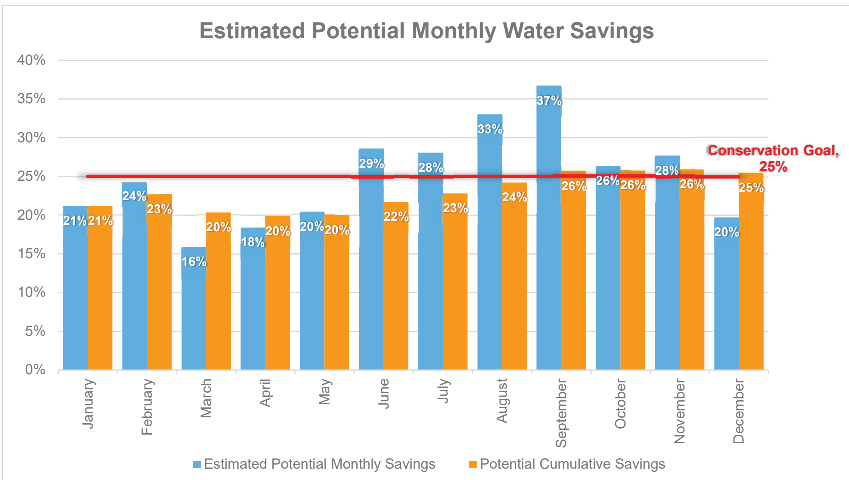
Estimated Monthly Water Use and Savings Summary

Units: (mg)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	33	21%	21%	25%	
February	39	30	24%	23%	25%	
March	43	36	16%	20%	25%	
April	43	35	18%	20%	25%	
May	52	41	20%	20%	25%	
June	54	39	29%	22%	25%	
July	57	41	28%	23%	25%	
August	55	37	33%	24%	25%	
September	50	32	37%	26%	25%	
October	51	38	26%	26%	25%	
November	46	33	28%	26%	25%	
December	40	32	20%	25%	25%	





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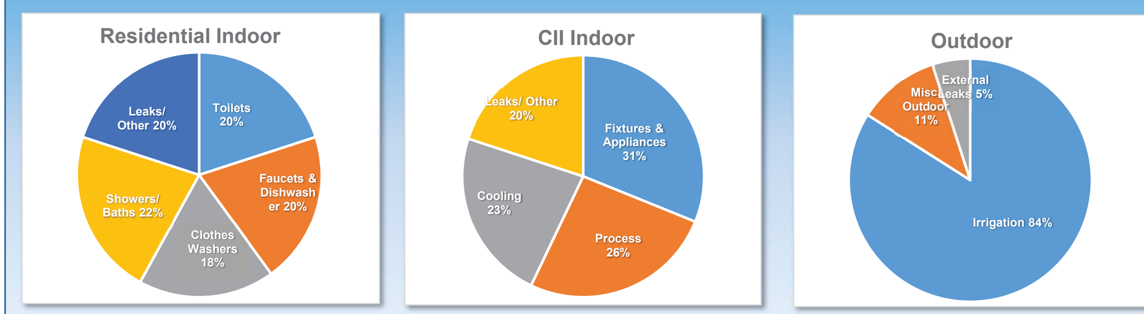
4 - Drought Response Actions - Stage 4

City of East Palo Alto

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**42%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector



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4 - Drought Response Actions - Stage 4

City of East Palo Alto

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Possible Mandatory Prohibitions	All Outdoor	☑	14%	90%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	17%	40%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	40%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑	17%	40%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	40%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☑			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☑			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	40%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--

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4 - Drought Response Actions - Stage 4

City of East Palo Alto

Drought Response Actions						
Action Description	**End Use(s)**	**Implement Program**	**End Use Savings (%)**	**Implementation Rate**	**Source of Default Savings Estimate**	**Source of Default Implementation Rate**
▶ Agency Drought Actions / Restrictions						
▶ Agency Actions						
Media Campaign, Newspaper Articles, Website	All	☑	**15%**	**80%**	Significant portion of the savings from 2013 to 2015 (24%) was driven by public outreach	--
Promote Water Conservation / Rebate Programs	All	☑		50%		--
Water Efficiency Workshops, Public Events	All	☐	0.5%	25%		--
Water Bill Inserts	All	☑	**5%**	100%		--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☑			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☑			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
▶ Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	☐	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 48 hours	External Leaks	☐	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

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4 - Drought Response Actions - Stage 4

City of East Palo Alto

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Agency Drought Actions / Restrictions						
▶ Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	65%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	79%	75%		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**80%**		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☑	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 10PM and 8AM	Irrigation	☐	38%	65%	UC IPM, 2014	--
Prohibit use of Potable Water for Irrigation	Irrigation	☑	**100%**	**80%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 48 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☑	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

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4 - Drought Response Actions - Stage 4

City of East Palo Alto

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► Residential Customer Actions to Encourage						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

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5 - Estimated Water Savings - Stage 4

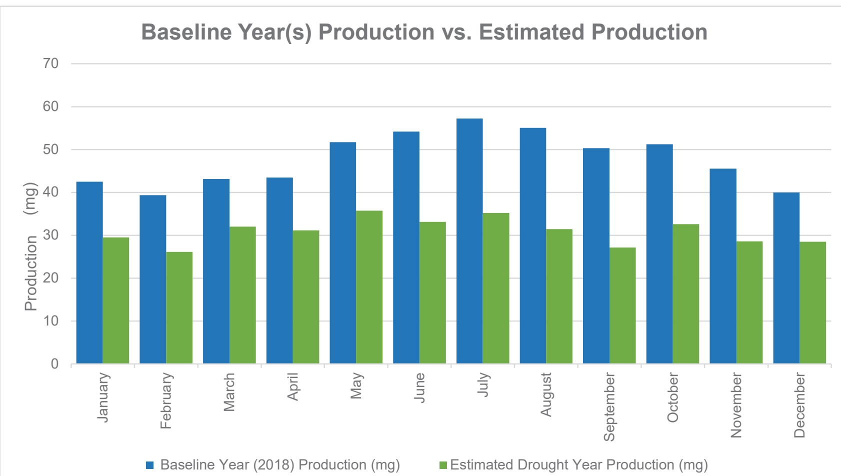
City of East Palo Alto

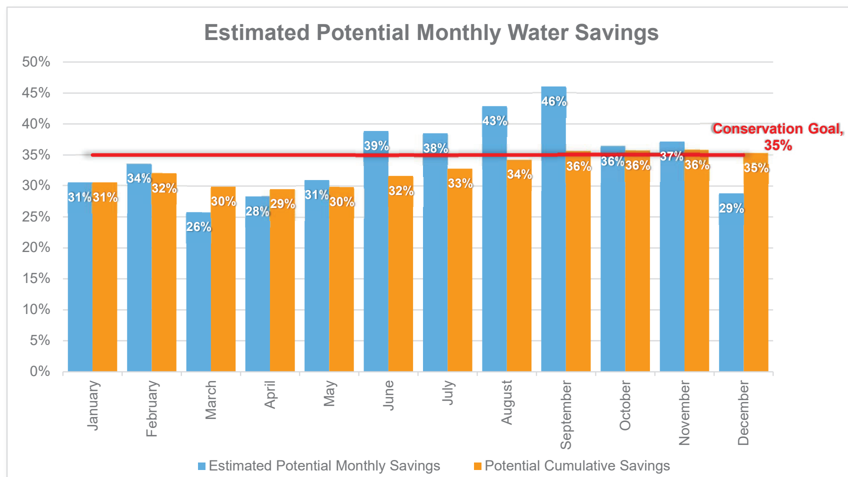
Estimated Monthly Water Use and Savings Summary

Units: (mg)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2018) Production (mg)	Estimated Drought Year Production (mg)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	42	30	31%	31%	35%	
February	39	26	34%	32%	35%	
March	43	32	26%	30%	35%	
April	43	31	28%	29%	35%	
May	52	36	31%	30%	35%	
June	54	33	39%	32%	35%	
July	57	35	38%	33%	35%	
August	55	31	43%	34%	35%	
September	50	27	46%	36%	35%	
October	51	33	36%	36%	35%	
November	46	29	37%	36%	35%	
December	40	28	29%	35%	35%	





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ATTACHMENT 4

WATER SHORTAGE CONTINGENCY PLAN RESOLUTION

RESOLUTION NO. 88 – 2021

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO

ADOPTING THE 2020 WATER SHORTAGE CONTINGENCY PLAN AND DIRECTING THE CITY MANAGER TO FILE THE 2020 WATER SHORTAGE CONTINGENCY PLAN BY JULY 1, 2021

WHEREAS, the California Urban Water Management Planning Act ("Act"), codified at California Water Code Sections 10620 et seq., requires every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare a 2020 Water Shortage Contingency Plan ("WSCP") as part of its 2020 Urban Water Management Plan; and

WHEREAS, the City of East Palo Alto last updated its WSCP in 2015 and the Act requires review of the WSCP at least once every five years; and

WHEREAS, the deadline for submitting the 2020 WSCP is July 1st, 2021; and

WHEREAS, the City has prepared and circulated for public review a final draft of the 2020 WSCP; and

WHEREAS, the City Council of the City of East Palo Alto held a duly noticed public hearing on June 15th, 2021, to review and consider adoption of the 2020 WSCP.

NOW THEREFORE, BE IT HEREBY RESOLVED THAT THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO HEREBY:

1. Adopt the 2020 WSCP; and
2. Directs the City Manager to file the 2020 WSCP with the California Department of Water Resources no later than July 1st, 2021.

PASSED AND ADOPTED this 15th day of June 2021**,** by the following vote:

AYES: Abrica, Gauthier, López, Wallace-Jones, and Romero

NOES:

ABSENT:

ABSTAIN:

____
Carlos Romero, Mayor

ATTEST:

____
Walfred Solorzano, City Clerk

APPROVED AS TO FORM:

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Rafael E. Alvarado Jr., City Attorney

Appendix K

Chapter 17.04 of the East Palo Alto Municipal Code

Chapter 17.04 - WATER CONSERVATION

Sections:

Article I. - Purpose and Definitions

17.04.010 - Purpose.

This chapter is intended to promote reasonable conservation of water in the city consistent with maintaining a comfortable standard of living and a healthy economy. It provides a framework for the orderly and timely implementation of reasonable water conservation measures by the different elements of the city's economy. This chapter also carries out certain provisions of the Water Code of the state as embodied in Article XIV, Section 3 of the Constitution of the state which states that maximum beneficial use of the water resources of the state is necessary to prevent the waste or unreasonable use, or unreasonable method of use, of water. This chapter further implements the provisions of the conservation element of the comprehensive water resources management plan for San Mateo County as adopted by the San Mateo County board of supervisors on June 20, 1978.

It is recognized that stricter water conservation measures may be necessary during a future drought or water shortage emergency. Such further measures should not penalize water users for past conservation practices, nor should implementation of water conservation measures constitute a new basis to determine future reduction in case of a declared water shortage emergency. No provision in this chapter is intended to supersede any rule or regulation of the Public Utilities Commission of the state.

Sections 17.04.030, 17.04.040, 17.04.050 and 17.04.140 shall apply only to water agencies administered by the city council of East Palo Alto.

(Prior code § 6-7.101)

17.04.020 - Definitions.

The following words and terms as used in this chapter shall have the following meanings:

"Applied water" means water delivered to a user; also called delivered water. Applied water may be used for either inside uses or for outside watering. It does not include precipitations or distribution losses. It may apply to metered or unmetered deliveries.

"Commercial establishment" means establishments providing services, engaged in the fabrication of structures or other fixed improvements, or otherwise occupied in nonmanufacturing profit motivated activities. Examples are retail stores, restaurants, entertainment facilities and home building concerns.

"Commercial water use" means water used by a commercial establishment.

"Domestic use" means all inside and outside uses of water associated with residential use; water used by commercial and industrial establishments other than in their product manufacture.

"Establishment" means an economic unit which produces goods or services, such as a farm, a factory or a store. In most instances, the establishment is in a single physical location, and is engaged in only one, or predominantly one, type of economic activity.

"Evapotranspiration (ET)" means the process of water returning to the atmosphere through evaporation from land and water surfaces and through transpiration of plants.

"Farm ditch efficiency" means the percent of the total volume of water supplied to the farm which is applied to the fields (a measure of distribution losses.)

"Flat rate water" means water sold to customers at a fixed rate irrespective of quantity used.

"Industrial establishment" means an establishment engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and usually described as plant, factories or mills, which characteristically use power-driven machines and materials-handling equipment. Establishments engaged in assembling component parts of manufactured products are also considered manufacturing establishments if the new product is neither a structure nor other fixed improvement.

"Industrial water use" means water used by an industrial establishment in the process of their product manufacture.

"Inside water use" means that part of the water delivery used within a home, commercial establishment, or manufacturing establishment for any purpose; also called "internal water use."

"Leaching requirement (LR)" means the fraction of the irrigation water that must pass through the root zone in order to prevent soil salinity from reaching a level that would result in reduced growth to crops, trees, gardens or landscape plants.

"Metered water" means water sold to customers on the basis of actual measured use; does not include losses in distribution.

"Net water use" means the sum of delivered water consumptively used or otherwise not recoverable.

"Outside water use" means the use of water for irrigation of gardens, lawns, and other ornamentals, and for replenishing swimming pools, fountains, ponds, car washing, etc., also called external water use.

"Pool cover" means an installation over or on a swimming pool and hot tubs which is used to minimize water evaporation.

"Precipitation" means the total measurable supply of all natural forms of water falling on the land area, including dew, rain, mist, snow, hail and sleet; usually expressed as depth of liquid water on a horizontal surface on a daily, monthly or yearly basis.

"Public facilities" means all structures, parks and public places, other than open space, engaged either in serving the public or in providing a public use.

"Public water use" means water use associated with public facilities.

Reasonable Use. "Reasonable use" of water involves the application of sufficient applied water to meet demands of a designated beneficial use in a manner consistent with efficiency, public health and sanitation concerns, current technology and local economic conditions. During dry years, practical and economically feasible means should be taken to minimize applied water use and incidental losses. During periods of normal water supplies, reasonable urban water uses include, but are not limited to, the following beneficial uses:

1. The use of water for interior household purposes to maintain personal standards of cleanliness and sanitation;
2. The use of water for exterior household purposes to maintain personal standards of exterior cleanliness, landscaping and recreational facilities;
3. The use of water for commercial purposes to maintain the services offered and to satisfy the health, esthetic and safety needs of both employees and the public;
4. The use of water for industrial purposes, including cooling, processing and other production related needs, and to satisfy health, esthetic and safety needs of the employees;
5. The use of sufficient water to maintain community services including, but not limited to, public safety, including fire fighting; schools and institutions; transportation systems; public streets and buildings; water supplies; sewage and garbage disposals; recreational and esthetic enjoyment areas such as parks, swimming pools, lakes, streams, golf courses and landscaping.

"Recirculation" means the reuse of water within a partially or completely closed system of pipes and appliances without the benefit of treatment, where its quality, other than its temperature, may not be altered.

"Reclaimed water" means the collection and appropriate treatment of used water to bring it to a quality suitable for reuse.

"Recycle" means the recovery of water suitable for reuse without treatment.

"Residential water use" means all inside and outside uses of water associated with residential areas.

"Service area" means the area of land included in the distribution system of a water agency.

"Type of water use" means a distinction of water use based on either a kind of land use (recreational, residential, commercial, etc.) or a kind of water use (outside use, personal use, swimming pool use, dishwashing use, etc.)

"Unaccounted for water" means the difference between the quantity of water introduced into the system and the quantity delivered to the eventual consumer; usually expressed as a percentage of water introduced into the system.

"Unit water use" means the average quantity of water used per person, acre, etc., over a specified period of time.

"Unreasonable use (waste)" means failure to take appropriate measures to minimize excess application and incidental losses of water. Examples of waste are excessive runoff from irrigation or from broken plumbing.

"Unreclaimable water" means used water which is uneconomical to reclaim due to its location, or physical or chemical quality.

"Urban water use" means the use of water for urban purposes, including residential, municipal, commercial, industrial, recreational, military and institutional classes. The term is applied in the sense that it is a kind of use rather than a place of use; includes delivered water and unaccounted for water.

"Water agency" means the East Palo Alto water district; water agency organized, founded or established to produce and distribute water directly or indirectly to customers.

"Water application efficiency" means the percentage of the volume of water delivered to the farm or farms by a conveyance system to the volume of water delivered to the conveyance system at the supply source.

"Water produced" means the total water introduced into a system or the sum of applied water and unaccounted for water.

(Prior code § 6-7.102)

Article II. - Implementation

17.04.030 - Metering.

On or after adoption of the ordinance codified in this chapter, all new water service connections provided by the water agency, including detector check meters on private fire protection services, shall be metered.

(Prior code § 6-7.201)

17.04.040 - Public assistance.

Water saving devices and information shall be made available by the water agency. However, the cost of any water saving device or devices shall be borne by the consumer requesting the device. The water agency shall also reasonably assist customers to detect leaks and increase the efficiency of applied water.

(Prior code § 6-7.202)

17.04.050 - Waste.

Unreasonable use of water is prohibited. Upon written notification to the user by the water agency, all unreasonable use of water shall be terminated and any required repairs to broken or defective plumbing, sprinkler, watering or irrigation devices shall be made within five calendar days or water service to the use may be terminated until corrective measures are taken.

(Prior code § 6-7.203)

17.04.060 - Pool and hot tub covers.

Covers shall be required for all new swimming pools and hot tubs and encouraged to be installed for existing pools.

(Prior code § 6-7.204)

17.04.070 - Residential water pressure.

Except for fire protection service lines, a pressure reducing valve, or valves, that will limit the static water pressure to any internal water outlet of the structure to eighty (80) pounds per square inch gauge, shall be installed in all new residential structures or those existing residential structures requiring a plumbing permit for modification of, or addition to, the existing plumbing.

(Prior code § 6-7.205)

17.04.080 - New or remodeled structures.

The following shall be installed in all new or remodeled residential, commercial or industrial structures:

A. Insulation of newly installed hot water pipes where such piping is located in attics, garages, crawl spaces or unheated spaces other than between floors or in interior walls, to provide a maximum heat loss of fifty (50) British Thermal Units per hour per linear foot for piping up to and including two inches in diameter, and one hundred (100) British Thermal Units per hour per linear foot for all sizes greater than two inches in diameter;
B. If newly installed or replaced, tank toilets utilizing not more than three and one-half gallons of water per flush action;
C. If newly installed or replaced, pressure reducing devices, or flow restrictors to limit the flow of

water consistent with the intended use.

(Prior code § 6-7.206)

17.04.090 - Pressure reducing valve.

In new or remodeled commercial or industrial structures requiring a plumbing permit, a pressure reducing valve, or valves, to limit the static water pressure to eighty (80) pounds per square inch gauge to the upper floor of the structure, shall be installed only if no supplemental internal pumping is anticipated. The intent of this section is to limit available water pressure to the structure consistent with uses of water on the premises.

(Prior code § 6-7.207)

17.04.100 - Vehicle washing.

Any new or remodeled vehicle washing facility requiring a plumbing permit, which utilizes more than twenty-five (25) gallons of water per vehicle, shall have a waste wash water recycling system.

(Prior code § 6-7.208)

17.04.110 - Recirculation.

Two years from the effective date of the ordinance codified in this chapter, no use of water will be permitted where recirculation of the water is economically, technically and hygienically feasible in all new, commercial or industrial structures.

An "economically feasible recirculation installation" is defined as, over the useful life of the equipment to be installed, a system where the present worth of the cost of the water saved is more than the present worth of both the capital, and the annual operation and maintenance costs. Such economic and technical feasibility shall be prepared by the user with the determination of feasibility made by the city building official.

(Prior code § 6-7.209)

17.04.120 - Water efficient landscaping.

Landscaping shall be installed and maintained in accordance with Section 17.06.010 et seq. of the East Palo Alto Municipal Code, entitled "Water Conservation in Landscaping Ordinance."

(Ord. 152 §§ 1—5, 1993: Ord. 99, 1988: Ord. 91, 1988: prior code § 6-7.210)

(Ord. No. 393, § 4, 1-19-2016)

17.04.130 - Agriculture.

In determining the reasonable beneficial use of irrigation water for field agriculture, local custom should be considered, and perhaps modified, according to evapotranspiration rates for different crops, infiltration rates of applied water on different soil types and land areas with varying degrees of slope, and water application efficiency and the types of distribution systems available. The development and utilization, within legal constraints, of the following water saving techniques shall be encouraged with consideration given to the economics of the various agricultural enterprises. These concepts shall be encouraged by advisory and regulatory agencies as follows:

A. *Field agriculture.*
   1. Utilization of an efficient irrigation system suited to the conditions with the scheduling of irrigation according to plant requirements;
   2. Use of reclaimed wastewater to irrigate field grown flowers and ornamentals when water quality, environmental conditions, public health and economic considerations permit such use;
   3. Adjustment of planting schedules and amounts to projected water supply;
   4. Construction of on-farm reservoirs to collect winter runoff and increase water storage;
   5. Collection and recycling of runoff water where possible;
   6. Encouragement of cooperation between riparian and nonriparian users who share a stream water supply.

B. *Greenhouse culture.*
   1. Utilization of an efficient irrigation system suited to the conditions;
   2. Construction of reservoirs to catch runoff water from greenhouse roofs and adjoining areas;
   3. Construction of catch basins with return pumping systems to collect and recycle drainage water from plants grown inside the greenhouse, if the quality is satisfactory;
   4. Collection and use of rainfall and runoff from adjoining farm lands.

(Prior code § 6-7.211)

17.04.140 - Shortages.

Notwithstanding the foregoing relating to conservation of water supplies, it is apparent that in times of a declared water shortage emergency pursuant to Section 350 et seq. of the Water Code of the state, certain additional mandatory water conservation practices will be necessary. It is the intent of this chapter that after allocation and setting aside the amount of water needed for domestic use, sanitation and fire protection, the emergency regulations shall establish priorities in the use of water for other purposes and shall provide for the allocation, distribution, and delivery of water for such other purposes, without discrimination between consumers using water for the same purpose or purposes. Regulations so adopted shall not penalize water users for past conservation practices.

(Prior code § 6-7.212)

Appendix L

Resolution No. 87-2021 and Resolution No. 88-2021, Approving an Urban Water Management Plan and the Associated Water Shortage Contingency Plan for the City of East Palo Alto

RESOLUTION NO. 87 – 2021

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO

ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN AND DIRECTING THE CITY MANAGER TO FILE THE 2020 URBAN WATER MANAGEMENT PLAN BY JULY 1, 2021

WHEREAS, the California Urban Water Management Planning Act ("Act"), codified at California Water Code Sections 10620 et seq., requires every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare a 2020 Urban Water Management Plan ("UWMP"); and

WHEREAS, the City of East Palo Alto last updated its UWMP in 2015 and the Act requires review of the UWMP at least once every five years; and

WHEREAS, the deadline for submitting the 2020 UWMP is July 1st, 2021; and

WHEREAS, the City has prepared and circulated for public review a final draft of the 2020 UWMP; and

WHEREAS, the City Council of the City of East Palo Alto held a duly noticed public hearing on June 15th, 2021, to review and consider adoption of the 2020 UWMP.

NOW THEREFORE, BE IT HEREBY RESOLVED THAT THE CITY COUNCIL OF THE CITY OF EAST PALO ALTO HEREBY:

1. Adopt the 2020 UWMP; and
2. Directs the City Manager to file the 2020 UWMP with the California Department of Water Resources no later than July 1st, 2021.

PASSED AND ADOPTED this 15th day of June 2021**,** by the following vote:

AYES: Abrica, Gauthier, López, Wallace-Jones, and Romero

NOES:

ABSENT:

ABSTAIN:

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Carlos Romero, Mayor

ATTEST: **APPROVED AS TO FORM:**

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Walfred Solorzano, City Clerk Rafael E. Alvarado Jr., City Attorney

RESOLUTION NO. 88 – 2021

A RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF EAST PALO ALTO

ADOPTING THE 2020 WATER SHORTAGE CONTINGENCY PLAN AND DIRECTING THE CITY MANAGER TO FILE THE 2020 WATER SHORTAGE CONTINGENCY PLAN BY JULY 1, 2021

WHEREAS, the California Urban Water Management Planning Act ("Act"), codified at California Water Code Sections 10620 et seq., requires every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare a 2020 Water Shortage Contingency Plan ("WSCP") as part of its 2020 Urban Water Management Plan; and

WHEREAS, the City of East Palo Alto last updated its WSCP in 2015 and the Act requires review of the WSCP at least once every five years; and

WHEREAS, the deadline for submitting the 2020 WSCP is July 1st, 2021; and

WHEREAS, the City has prepared and circulated for public review a final draft of the 2020 WSCP; and

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ABSENT:

ABSTAIN:

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Carlos Romero, Mayor

ATTEST:

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Walfred Solorzano, City Clerk

APPROVED AS TO FORM:

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Rafael E. Alvarado Jr., City Attorney

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