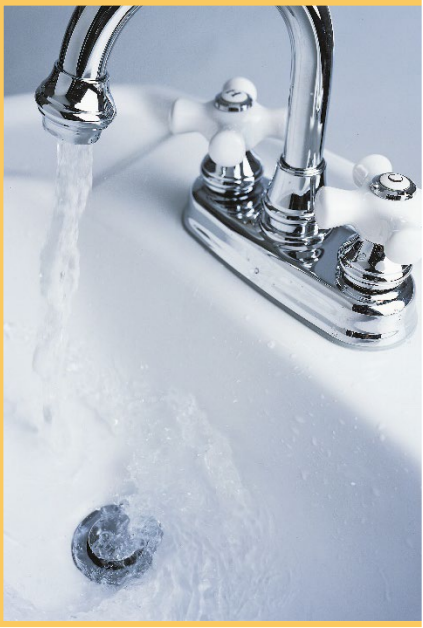

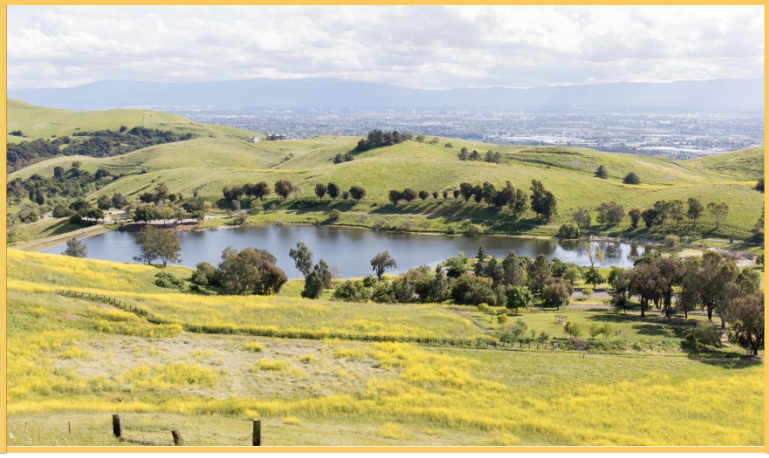

The City of Milpitas
2020 Urban Water Management Plan

July 1, 2021

Prepared by: MADDAUS WATER MANAGEMENT

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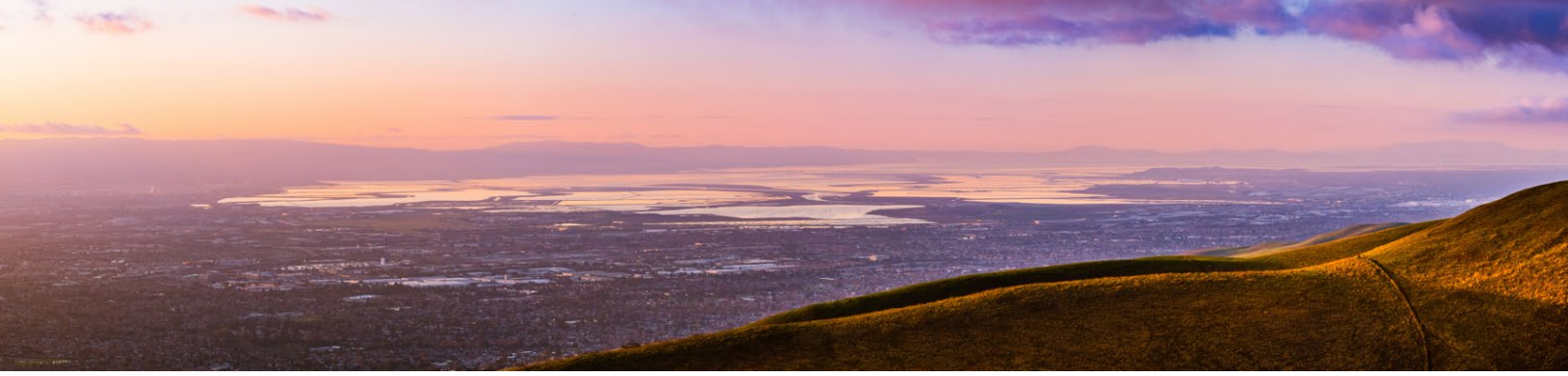

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LIST OF ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACS	American Community Survey
ACWD	Alameda County Water District
AF	acre-feet
AFY	acre-feet per year
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
BART	Bay Area Rapid Transit
BMP	Best Management Practice
CCF	hundred cubic feet
CalWEP	California Water Efficiency Partnership
CAP	Climate Action Plan
CEC	California Energy Commission
CII	Commercial, Industrial and Institutional
CIP	Capital Improvement Program
CNRA	California Natural Resources Agency
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DDW	State Water Resources Control Board Division of Drinking Water
DMM	Demand Management Measures
DOF	California Department of Finance
DRA	Drought Risk Assessment
DSS Model	Least Cost Planning Decision Support System Model
DWR	California Department of Water Resources
ETo	Evapotranspiration
GPCD	gallons per capita per day
gpd	gallons per day
gpf	gallons per flush
gpm	gallons per minute
HET	High-Efficiency Toilet
HEU	High-Efficiency Urinal
IPCC	Intergovernmental Panel on Climate Change
ISG	Individual Supply Guarantees
LOS	Level of Service
MF	Multi-Family
MG	million gallons
mgd	million gallons per day
MGSP	Milpitas Gateway-Main Street Specific Plan
MGY	million gallons per year
MOU	Memorandum of Understanding
MMSP	Milpitas Metro Specific Plan
MWM	Maddaus Water Management
PPIC	Public Policy Institute of California
psi	pounds per square inch
R-GPCD	residential gallons per capita per day
REUWS	Residential End Uses of Water Study
RUWMP	Regional Urban Water Management Plan
RWS	Regional Water System
SB	Senate Bill
SB X7-7	Water Conservation Act of 2009
SBWR	City of San Jose South Bay Water Recycling
SF	Single Family
SFPUC	San Francisco Public Utilities Commission
SJWC	San Jose Water Company
State Water Board	State Water Resources Control Board
SWP	State Water Project
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act of 1983
WEAP	Water Evaluation and Planning
WPCP	Water Pollution Control Plant
WSCP	Water Shortage Contingency Plan
WWTP	Wastewater Treatment Plant
WUE	Water Use Efficiency

1 INTRODUCTION AND OVERVIEW

This report presents the 2020 Urban Water Management Plan (2020 UWMP) for the City of Milpitas ("City" or "Milpitas") service area. This section describes the general purpose of this 2020 UWMP and its organization and implementation as well as its relation to supplier grant and loan eligibility and the California Water Code.

1.1 Lay Description

An UWMP is a report used for local water conservation planning and implementation purposes. This may also include the inclusion of planning for emergency supply interruptions as well as improved alignment with other local planning documents. The UWMP is an important and valuable water management and planning tool because it helps guide the government and managers of a water supplier by creating connections from land-use planning, water supply planning and local or statewide issues such as climate change. The UWMP also provides a way by which the water supplier can share information about its water management practices with its customers, community, and state.

An UWMP can also provide accurate details about other management actions such as the effectiveness of water shortage contingency planning, necessary infrastructure improvements or emergency connections with neighboring suppliers, trends in water supply consistency (water reliability) related to climate change or regulatory conditions and opportunities to obtain funding for water management projects.

An UWMP is valuable in collecting and evaluating statewide water supply reliability data as it helps both the Suppliers and the state to plan for future risk of drought. If Suppliers so desire, they can add further details to better describe their area's water supply conditions. Doing so can help improve the evaluation of their water supply consistency and risk of drought. It can also make the UWMP more effective for addressing local, regional, and statewide water planning and management concerns.

1.2 Urban Water Management Plan Organization

This UWMP is organized into the following chapters:

Chapter 1 – UWMP Introduction and Lay Description. This chapter provides a discussion on fundamentals of the UWMP and provides the newly required lay description.

Chapter 2 – Plan Preparation. This chapter provides information on the processes used for developing the UWMP, including efforts in coordination and outreach.

Chapter 3 – System Description. This chapter describes the City's water system, including maps of the service area, an explanation of the service area and climate, details on the public water system and an overview of the City's organizational structure and history.

Chapter 4 – Customer Water Use. This chapter describes and quantifies the current and projected water uses within the City's service area.

Chapter 5 – Conservation Target Compliance. In this chapter, the City details its compliance with the 2020 per capita water conservation mandate, the 2020 per capita target value that was adopted in the 2015 UWMP and the City's compliance value based upon actual 2020 customer water use. Also provided are the target and baseline calculations.

Chapter 6 – System Supplies. In this chapter, the City describes and quantifies current and projected potable and non-potable water supplies. Also provided is a narrative description of each supply source and quantification of the supply availability for each source identified.

Chapter 7 – Water System Reliability. This chapter describes the City's water system reliability through a 20-year planning horizon for normal, single dry year and five consecutive dry years. This chapter also includes the Drought Risk Assessment. The water system reliability differs from the DRA by allowing a different basis for characterizing the five consecutive dry years.

Chapter 8 – Water Shortage Contingency Planning. This chapter provides the City's structured plan for dealing with water shortages, incorporating prescriptive information and standardized action levels, along with implementation actions in the event of a catastrophic supply interruption.

Chapter 9 – Demand Management Measures. This chapter communicate the City's efforts to promote conservation and to reduce demand on its water supply, including a narrative describing efforts to implement several demand management measures.

Chapter 10 – Plan Adoption, Submittal, and Implementation. This chapter describes and documents the steps taken to make the City's UWMP publicly available as well as the steps taken to adopt and submit the UWMP in accordance with the Water Code. This chapter also describes the City's plan to implement the UWMP.

Appendices – In order to produce a well-supported planning document, a number of appendices, as listed in the Table of Contents, are included in this UWMP to provide information in addition to that in the main chapters.

1.3 UWMPs in Relation to Other Efforts

General Plan – The Milpitas 2040 General Plan was adopted on March 9, 2021 (De Novo, 2021).

Draft 2020 Water Master Plan – The City's Draft Water Master Plan was completed May 18, 2021 (West Yost, 2021).

2013 Climate Action Plan – The City's Climate Action Plan was adopted May 7, 2013 (PMC, 2013). A Climate Action Plan (CAP) Update is currently being developed.

1.4 UWMPs and Grant or Loan Eligibility

In order for a water supplier to be eligible for any water grant or loan administered by DWR, the supplier must have a current UWMP on file that has been determined by DWR to address the requirements of the California Water Code. A current UWMP must also be maintained by the Supplier throughout the term of any grant or loan administered by DWR. A UWMP may also be required in order to be eligible for other state funding, depending on the conditions that are specified in the funding guidelines.

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

Valley Water Standard Text

Retailer water supply includes groundwater pumped from a conjunctively managed groundwater basin. The groundwater basins in Santa Clara County span nearly 400 square miles, with thousands of well users pumping groundwater for beneficial use.

As a retailer in Santa Clara County that uses groundwater, we rely on Valley Water activities to maintain sustainable supplies, including managed groundwater recharge and in-lieu groundwater recharge (e.g., treated surface water deliveries, demand management programs, and SFPUC supply)

Valley Water's complex water supply and management system is based on the conjunctive management of groundwater and surface water (both local and imported). Therefore, it is very difficult to demonstrate reduced Delta reliance at a retailer level:

- Valley Water uses water from the State Water Project (SWP), Central Valley Project (CVP) and local watershed runoff to meet groundwater recharge and water treatment plant needs, which in turn produce water for use by retailers and other users. The interconnected nature of the groundwater basins and blended use of sources in Valley Water infrastructure like reservoirs and pipelines make it infeasible to quantify imported water use at the retailer level.
- Valley Water manages most of the water conservation programs for the County with the support of retailers. Retailers support the conservation programs through water rates and cost share agreements.
- Valley Water and local retailers have recycled water goals for the future but the projected future split between potable and non-potable is not yet determined. Potable reuse would be managed by Valley Water and either directly augment groundwater or treated surface water. In both instances, it would get blended with several other sources before being used by retailers so it would be infeasible to determine the proportion of potable recycled water going to each retailer compared to Delta supplies.
- Valley Water projects an increased use of supplies captured locally, which can contribute to reduced reliance on the Delta. But given Valley Water's conjunctive water management, these reductions cannot be allocated to individual retailers.

Valley Water, with the support of all retailers including the City has made significant investments in demand management and local supplies to reduce Santa Clara County's and thus the City's reliance on the Delta. These investments include:

- Conservation measures
- Recycled water
- Stormwater capture
- Dam Improvements/Seismic Retrofits of local reservoirs

Through careful management and conjunctive use of local surface water and groundwater supplies, and increasing conservation and use of recycled water, Santa Clara County (and by extension the City of Milpitas) is reducing reliance on the Delta.

The Delta Plan is not mentioned in the SFPUC UWMP as SFPUC does not receive water from the California State Water Project (SWP) and the Central Valley Project (CVP).

1.6 Background and Purpose

This Urban Water Management Plan is the legal and technical water management foundation for supplies throughout California. A well-constructed UWMP can save time and money and provides the City UWMP staff, the public and elected officials with an understanding of past, current and future water conditions and management. The UWMP integrates local and regional land-use planning, regional water supply, infrastructure and demand management projects, as well as statewide issues of concern like climate change and regulatory revisions. For this 2020 UWMP, the City has gathered and synthesized water-related information from numerous sources into a plan with local, regional, and statewide information.

Chapter 1 introduces the UWMP, its legislative history, legal requirements and amendments, focus, importance and purpose. Additionally, in this chapter the City describes its process for integrating information from other documents and coordination with local and regional agencies. The intent of UWMPs is to provide the California Department of Water Resources (DWR) and the public with information on present and future water sources and demands and to provide an assessment of the City's water resource needs.

This UWMP provides the City with a reliable water management action plan that can be confidently referred to continuously, as conditions change and management decisions arise. It also can demonstrate the reliability of the City's water supplies and how that might affect local growth and the economy.

An additional intention of this UWMP is to provide DWR, the State Water Resources Control Board (State Water Board) and the California Legislature with a representation of the City's water reliability so that a full picture of statewide water reliability may be constructed. The UWMP also allows the City to characterize conditions to improve its water reliability assessments, drought risk assessments and use of the UWMP for addressing local, regional and statewide water planning and management issues.

The UWMP provides the City with the opportunity to consider additional options for managing water assets to enhance the City's long-term water reliability and other management objectives. A careful accounting of supplies, uses and reliability can inform actions for retaining conserved water assets or for leveraging water assets for environmental improvements or financial gain. The more detailed and reliable the accounting, the better the City is able to gauge how much extra or how short water supplies may be in any given situation. This information can allow the City to make sound management decisions regarding asset management and infrastructure planning to help mitigate long-term water management conditions attributable to climate change, regulatory change and local water quality conditions.

For example, where surplus water conditions exist under certain circumstances, these water assets can be used for alternative purposes like instream flow and habitat enhancement, or crisis-related supplies for neighboring urban purveyors, which stabilize the environment or enhance regional water reliability.

In short, the City has prepared this UWMP to provide practical and effective water management guidance for its staff, stakeholders, customers, community and the state of California water governing bodies and Legislature.

The intent of this plan is to provide the Department of Water Resources (DWR) and the public with information on present and future water sources and demands and to provide an assessment of City's water resource needs. Specifically, the 2020 UWMP must provide water supply planning for a 20-year planning period in 5-year increments, identify and quantify adequate water supplies for existing and future demands during normal, dry and drought years and assure efficient use of urban water supplies. This 2020 UWMP addresses all Water Code requirements for such a plan as shown in the completed DWR UWMP checklist provided in Appendix A.

Thoughtful urban water management planning provides the City with the opportunity to integrate supplies and demands in a balanced and methodical planning platform that addresses short-term and long-term water planning conditions. This 2020 UWMP will:

- Assess changes in natural hydrology, climate and groundwater conditions.

- Anticipate the implications of regional, state and federal regulations.
- Understand supply conditions and water use variability.
- Identify regional constraints on or opportunities for shared water resources.
- Integrate local land-use changes, development, plans and population growth.
- Prepare for water shortages and unforeseen calamities.
- Anticipate infrastructure improvements.
- Recognize project funding needs and opportunities.

This UWMP will address the following water-planning fundamentals:

- Preparing a detailed look at current and future water use, including assessing and error-checking available baseline data and examining long-term planning documents like municipalities' General Plans and Specific Plans.
- Analyzing potable and non-potable water supplies, including reviewing water rights and contracts, assessing water deliveries, ascertaining restrictions on water availability under certain regulatory and hydrological conditions and other opportunities or limitations explained in documentation for each water supply.
- Analyzing water supply reliability by integrating the water use analyses with the water supply analyses to provide a water service reliability picture under normal conditions, single dry-year conditions and five consecutive dry years through at least 2040.
- Preparing a realistic Drought Risk Assessment (DRA) by including integrated water supplies and projected water use in a hypothetical five-year drought condition; and
- Developing an effective Water Shortage Contingency Plan that specifies opportunities to reduce demand and augment supplies under numerous, and even unpredictable, water shortage conditions.

Furthermore, this UWMP allows the City to reflect short-term and long-term land-use planning assumptions and goals, account for specific plan and infill development projects over the course of the UWMP planning period, handle the dynamic nature of water supplies and demands through sound water-shortage contingency planning and inform the state and the City's customers about its water management practices.

Lastly, changes in cultural use patterns, such as the stay-at-home 2020 pandemic-related orders, can alter urban water use patterns and affect current and future water conservation accounting and analysis. Current water data may reflect a temporary or long-term change in water use and could affect evaluation of near-term and long-term management considerations. Within this UWMP, the City will describe such changes and the potential effects on its current and projected water data.

1.7 Urban Water Management Planning and the California Water Code

In 1983, the California Legislature enacted the Urban Water Management Planning Act (UWMP Act). The law required an urban water supplier[1] to adopt a UWMP every five years demonstrating water supply reliability in normal, single dry and multiple dry years. The original UWMP Act also required the California Department of Water Resources (DWR) to provide a report to the California Legislature on the status of water supply planning in California.

[1] A "Supplier" is defined as an entity providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet annually.

Since the UWMP Act was passed, it has undergone significant expansion and revision since the last UWMP Guidebook was prepared in 2015 (see details following). Prolonged droughts, groundwater overdraft, regulatory revisions and changing climatic conditions not only affect a supplier's water reliability determinations, but also the broad picture of statewide water reliability overseen by DWR, the State Water Board and the State of California Legislature (Legislature). Accordingly, the UWMP Act has grown to address changing conditions as it guides California's water resource management.

There are numerous additional requirements passed by the Legislature for the 2020 UWMPs, updating the 2015 UWMP guidance. Significant new requirements include the following:

- **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. This statutory change requires a Supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period. This requirement is addressed in the water use assessment presented in Chapter 4, the water supply analysis presented in Chapter 6 and the water reliability determinations in Chapter 7.
- **Drought Risk Assessment** – The California Legislature created a new UWMP requirement for drought planning in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change. The 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.
- **Seismic Risk** – The Water Code now requires a Supplier to specifically address seismic risk to various water system facilities and to have a mitigation plan (see Chapter 8). An important aspect of this provision is the intersection of water supply infrastructure planning with a county or regional hazard mitigation plan.
- **Water Shortage Contingency Plan** – In 2018, the Legislature modified the UWMP laws to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides a Supplier with an action plan for a drought or catastrophic water supply shortage. Although the new requirements are more prescriptive than previous versions, many of these elements have long been included in WSCPs, other sections of UWMPs, or as part of a Supplier's standard procedures and response actions (see Chapter 8). Many of these actions were implemented by Suppliers during the last drought, to successfully meet changing local water supply challenges. The WSCP will also have statewide utility for DWR, the State Water Board and the Legislature in addressing extreme drought conditions or statewide calamities that impact water supply availability. See Appendix I of this UWMP for the WSCP.
- **Groundwater Supplies Coordination** – In 2014, the Legislature enacted the Sustainable Groundwater Management Act to address groundwater conditions throughout California. Water Code now requires 2020 UWMPs to be consistent with Groundwater Sustainability Plans in areas where those plans have been completed by 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. This new section of the UWMP could be viewed as a go-to synopsis for new staff, new governing members, customers and the media, and it can ensure a consistent representation of a Supplier's detailed analysis.

2 PLAN PREPARATION

Lay Description

This chapter describes the basis of the development of the Urban Water Management Plan; the requirements for preparation; the processes used, including efforts in notification, coordination and outreach; the regional planning involved; and the calendar year and units of measure used.

2.1 Plan Preparation

Coordination and outreach are key elements in developing a useful and accurate UWMP. Working with neighboring water suppliers strengthens a region's ability to plan for drought and catastrophic events.

Coordination with city and county land use planning agencies can provide information on regional planning, demographics and expected future development for determining future water use, supply and reliability assessments. Notification to all interested parties and stakeholders allows those entities to provide information on aspects of the UWMP, to help in creating a more useful plan. It also lets these entities know about the different water management considerations that may affect their own decisions.

The City is an active member of the water community and coordinated with these agencies for this UWMP:

- BAWSCA
- Valley Water
- SFPUC

The City coordinated various water planning documents to support development of the UWMP:

- Draft 2020 Water Master Plan: evaluates historical and existing water demands to review and refine performance and planning criteria to evaluate the water system and facilities.
- General Plan: identifies the community's vision for the future and provides a framework that will guide decisions on growth, development, and conservation of open space and resources in a manner that is consistent with the quality of life desired by the city's residents and businesses.

2.2 Basis for Plan Preparation

California Water Code Section 10617 defines an urban water supplier as "*a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part*

applies only to water supplied from public water systems."[2] In accordance with the California Water Code Section 10621, urban water suppliers are required to prepare a UWMP every five years.[3]

As per the above definition, the City qualifies as an urban water supplier. The City has prepared this plan in compliance with state law and following the guidelines as outlined by the Department of Water Resources in its *Urban Water Management Plan Guidebook 2020*, posted as Final in April 2021. This 2020 UWMP is the 5-year update to the 2015 UWMP and will supersede the contents of the former plan.

Public water systems are the distribution systems that provide drinking water for human consumption. All public water systems are given a unique Public Water System Identification Number (PWSID). These systems are regulated by the State Water Board, Division of Drinking Water (DDW). The California Health and Safety Code 116275 defines a public water system as "*a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year."*[4] Based on this definition, the City of Milpitas is a Public Water System and therefore operates under a water supply permit issued by DDW.

As indicated in Table 2-1, the City served 16,360 municipal connections and 3,430 million gallons of water in 2020. The total number of connections accounts for all billed water meters in the City, including recycled water and fire meters. The total number of connections does not account for the number of multi-family residential units served by master meters. Multi-family residential developments such as apartment complexes may use a single master meter to measure consumption for more than one dwelling unit.

Table 2-1. Public Water Systems

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
4310005	City of Milpitas	16,360	3,430
	TOTAL	16,360	3,430
NOTES: The volume of water supplied in 2020 was a combination from SFPUC (2,159 MG), Valley Water (914 MG), and Recycled Water (357 MG). The number of connections is the number of active connections, including recycled water and fire accounts, as of December 2020.			

2.3 Regional Planning

Regional planning can deliver mutually beneficial solutions to all agencies involved by reducing costs for the individual agency, assessing water resources at the appropriate geographic scale and allowing for solutions that cross jurisdictional boundaries.

[2] California State Legislature. (1983). Water Code Section 10617, amended 1996. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=10617.

[3] Ibid. (1983). Water Code Section 10621. http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=10621

[4] Ibid. (1995). Health and Safety Code Section 116275. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=116275.

Depending on the level of regional cooperation, other possible benefits can include:

- More reliable water supplies.
- Increased regional self-reliance.
- Improved water quality.
- Better flood management.
- Increased economic stability.
- Restored and enhanced ecosystems.
- Reduced conflict over resources.

In support of regional UWMPs and regional water conservation targets, the UWMP portion of the Water Code provides mechanisms for participating in area-wide, regional, watershed, or basin-wide urban water management planning. The City understands the value of regional planning and as such partakes in regional conservation efforts through participation with the Bay Area Water Supply & Conservation Agency (BAWSCA). BAWSCA provides regional water reliability planning and conservation programming for the benefit of its 26 member agencies, including the City of Milpitas, that purchase wholesale water supplies from 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.

As an active member of BAWSCA, the City of Milpitas works in conjunction with BAWSCA and the other member agencies. BAWSCA represents the collective interests of these wholesale water customers on all significant technical, financial, and policy matters related to the operation and improvement of SFPUC's Regional Water System (RWS). This regional planning interaction allows for broader distribution of materials and information as well as reduced costs to each of the individual water suppliers through sharing of resources. BAWSCA's role in the development of the 2020 UWMP updates is to work with its member agencies and the SFPUC to seek consistency among UWMP documents.

In 2009, the SFPUC and BAWSCA members entered into a Water Supply Agreement, a 25-year contract outlining the relationship between the two entities. A key component of the Water Supply Agreement is that it continued the "Supply Assurance," a maximum supply of 184 million gallons per day (mgd) to be allocated among BAWSCA members, established by the Water Supply Agreement's predecessor (the 1984 Settlement Agreement and Master Water Sales Contract). Though the Supply Assurance can be reduced due to drought, maintenance, or emergencies, the Water Supply Agreement established the 184 mgd delivery ceiling in perpetuity. The City has an individual supply guarantee (ISG) of 9.232 mgd from SFPUC. SFPUC's Supply Assurance and the City's ISG is discussed in more detail in section 7.2.5.

Per the City's contract with Valley Water, potable water deliveries consist of State Water Project and Central Valley Project water only, with amounts based on an annual request the City submits every three years. In each of the three years after submitting the request, the City is obligated to purchase at least 95 percent of the maximum amount listed on the schedule. Every month, Valley Water guarantees the City can receive at least 15 percent of the annual delivery schedule.

2.4 Individual or Regional Planning and Compliance

The City has developed this UWMP to report solely on its distribution service area. Individual UWMPs address all requirements of the Water Code including water use targets and baselines (for SB X7-7 Water Conservation Act of 2009 reporting). The City has notified and coordinated with the appropriate regional agencies and constituents.

This 2020 UWMP, which is an individual UWMP (see Table 2-2), updates and replaces the City's 2015 UWMP.

Table 2-2. Plan Identification Type

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**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)**		

2.4.1 Regional UWMP

A group of suppliers agreeing among themselves to plan, comply and report as a region on urban water use target requirements of SB X7-7 is referred to as a Regional Alliance. A Regional Alliance allows water suppliers to work toward cooperatively developing programs and meeting regional water conservation targets, but not necessarily submitting a Regional Plan. Since the City does not have a Regional Alliance, this section does not apply.

2.5 Fiscal or Calendar Year and Units of Measure

Since the City reports on a calendar year basis rather than fiscal, it is required to include the water use and planning data for the entire calendar year of 2020, which is reflected in this 2020 UWMP. In addition, the City utilizes million gallons (MG) throughout this plan as the unit of measure when reporting water volume.

Table 2-3 provides agency identification information, type of year reporting and units of measure used by the City in this 2020 UWMP to report water data and assessments.

Table 2-3. Supplier Identification

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years, provide month and date that the fiscal year begins (mm/dd)	
Units of Measure Used in UWMP (select from drop down)	
Unit	MG

2.6 Coordination and Outreach

This section describes the coordination and outreach efforts of the City during preparation of the 2020 UWMP.

2.6.1 Wholesale and Retail Coordination

When a water supplier relies upon a wholesale agency for a water supply, both suppliers are required to provide each other with information regarding projected water supply and demand. Retail agencies that receive a water supply from one or more wholesalers are required to provide their wholesaler(s) with the retail agency's projected water demand from that source in five-year increments for 20 years or as far as possible based on the data available.

During the preparation of the 2020 UWMP, the City coordinated with its two potable water wholesalers, the San Francisco Public Utilities Commission (SFPUC) and Valley Water, as indicated in Table 2-4. The City maintains one groundwater well for use in emergencies, but it is not used as a normal supply. More information about coordination and notification efforts can be found in Chapter 10.

Table 2-4. Water Supplier Information Exchange

Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name (Add additional rows as needed)
San Francisco Public Utilities Commission
Valley Water (previously named Santa Clara Valley Water District)

2.6.2 Coordination with Other Agencies and the Community

On February 23, 2021, the City distributed notices of preparation to the appropriate agencies through email. The notice was sent to the following entities:

- San Francisco Public Utilities Commission, the City's wholesaler
- Valley Water, the City's wholesaler
- BAWSCA and the 26 other BAWSCA member agencies that share SFPUC as a common wholesale water source[5]
- Great Oaks Water Company
- Milpitas Chamber of Commerce
- Milpitas Unified School District
- Montara Water and Sanitary District
- Alameda County Water District, the City's emergency intertie
- San Jose Water, the City's emergency intertie

In addition to the notice of intent to update its UWMP, the City of Milpitas also notified surrounding cities, Santa Clara County, BAWSCA and its member agencies and the general public more than 60 days in advance of the public hearing. With the exception of the general public, notification was provided by email. Notification to the

[5] BAWSCA. Member Agency Profiles web page, accessed May 2021: https://bawsca.org/members/profiles

general public was achieved through a display advertisement in *The Milpitas Post.* Copies of the notices can be found in Appendix E of this UWMP.

The City convened the public hearing on June 15, 2021, to receive comments on the 2020 UWMP prior to its final adoption by the City Council and submittal to the California Department of Water Resources. The plan was adopted on June 15, 2021, at the regular City Council meeting. The 2020 UWMP was made available for public review online on the City's website[6] since access to the City office, the public library and City Hall was limited due to COVID-19 restrictions.

A copy of the Final 2020 UWMP was submitted to the following entities:

- California Department of Water Resources
- California State Library
- BAWSCA and the 25 other BAWSCA member agencies
- SFPUC
- Valley Water
- Santa Clara County
- Spring Valley Heights Association
- Milpitas Unified School District
- Milpitas Chamber of Commerce

The City of Milpitas has a very socially, culturally and economically diverse community. To support this diversity, prior to and during the preparation of the plan, the City encouraged the active involvement of diverse social, cultural, and economic elements of its population within the service area. In addition to outreaching through Facebook and NextDoor, the City also sent notices to non-profit organizations, service groups, and churches and religious leaders.

2.6.3 Notice to Cities and Counties

The California Water Code 10621(b) requires that agencies notify cities and counties to which they serve water that the 2020 UWMP is being updated and reviewed. The California Water Code specifies that this must be done at least 60 days prior to the public hearing.

The full list of cities and counties to which the City of Milpitas sent the 60-day notification is reported in Table 10-1 in Chapter 10.

[6] https://www.ci.milpitas.ca.gov/2020_uwmp/

3 SYSTEM DESCRIPTION

Lay Description

This chapter provides guidance for describing the City's system, including a description of the service area, climate, projected population and other factors that might affect water management planning. It includes additional guidance for uncertainties, such as the potential impacts of climate change.

3.1 General Description

The City of Milpitas is located in Santa Clara County near the southern tip of the San Francisco Bay, 45 miles south of San Francisco. The City of Fremont borders Milpitas to the north and the City of San Jose borders Milpitas to the south. Most of its 14 square miles of land is situated between two major freeways (I-880 and I-680) and a county expressway. The City has approximately 10 square miles of valley floor to the west and 4 square miles of hillside areas to the east. Industrial and commercial areas are located on the valley floor with residential areas on the valley floor and hillside. Parks and recreational open spaces are distributed throughout residential areas.

Since its inception in 1954, the City has experienced steady growth and development. At the time of incorporation, the City covered an area of 2.9 square miles with a population of 825. Rapid growth began with the Ford Motor Company assembly plant in 1955 and continued with the high technology industry in the 1970s. The majority of the valley floor is fairly new. Growth slowed as result of the recession of 2008. However, in more recent years, the transformation of industrial areas of the City into high-density housing has resumed. The City contains a strong complement of employment and retail uses as well as housing. Large sources of employment include manufacturing, the school district, and the Great Mall shopping center.

The City owns, operates and maintains a potable water distribution system which consists of five turnouts, one emergency groundwater well, three emergency interties, five storage reservoirs, five pump stations, 17 pressure reducing valves (PRVs), and approximately 183 miles of pipeline. The City also operates and maintains a recycled water system owned by the City of San Jose South Bay Water Recycling (SBWR) program.

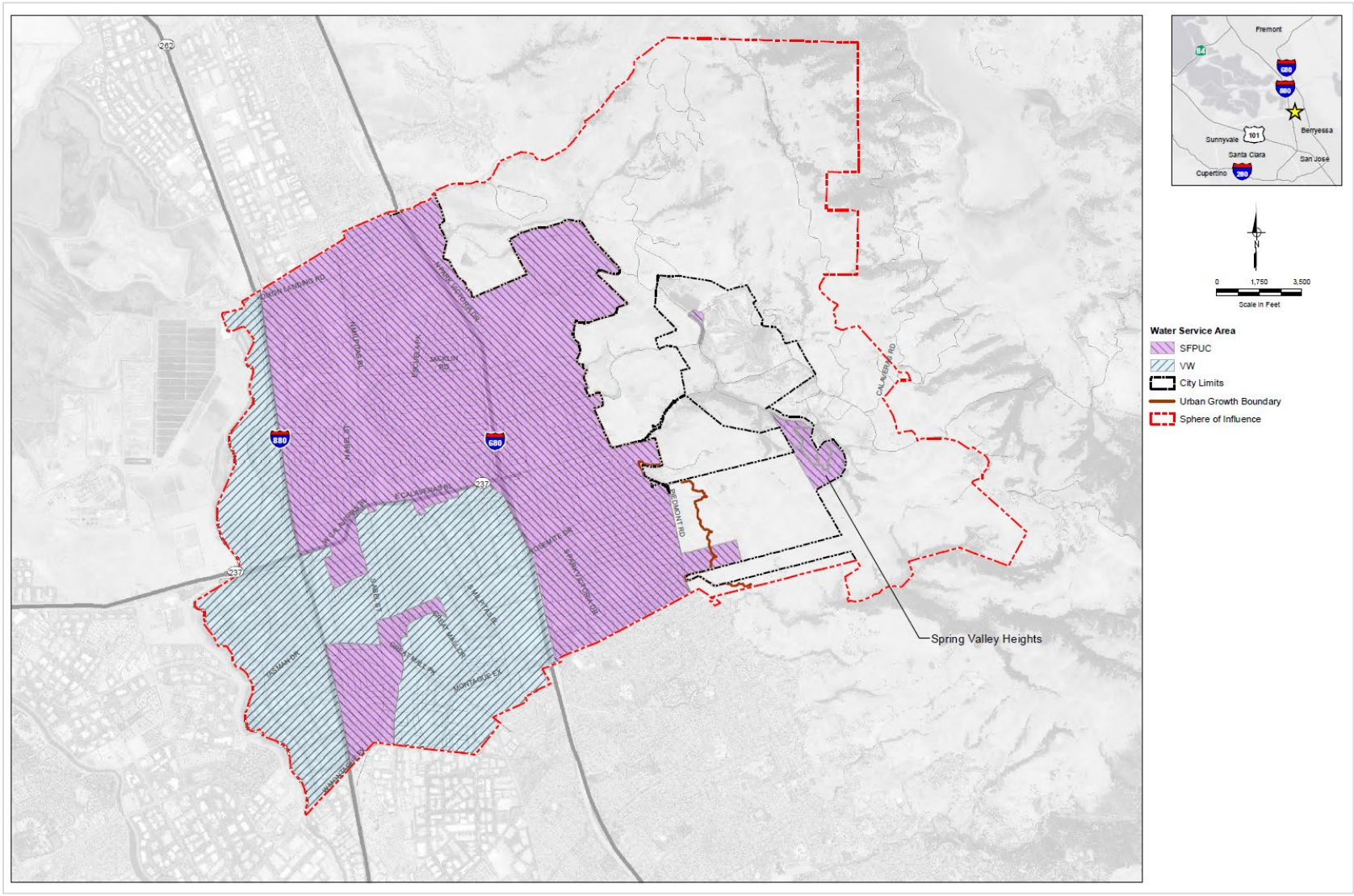
3.2 Service Area Boundary Maps

As shown in Figure 3-1, the City's potable water supply system is divided into two distinct service areas, corresponding to the areas served by the City's two wholesalers: SFPUC and Valley Water. Under normal operating conditions, the City does not blend water from SFPUC and Valley Water. However, the two sources of water can be interconnected to provide an emergency water supply, if needed.

The City of Milpitas Sphere of Influence (SOI) includes both incorporated and unincorporated areas within which Milpitas has primary responsibility for providing public facilities and services. In 1998, voters in the City of Milpitas established an Urban Growth Boundary (UGB) limiting development in the eastern hillside. The initiative was set to expire in 2018 but was extended by Measure I in November 2016 and will expire in 2038. The Urban Service Area (USA) Boundary is contiguous with the UGB, and the (USA) restricts the extension of public services and infrastructure to new development(s) in the City Limits' eastern areas SOI.

Figure 3-1 shows the City's Sphere of Influence, Urban Growth Boundary and Urban Service Area Boundary. One exception to the moratorium is the Spring Valley Heights community, which is located outside the Urban Growth Boundary but served by City water distribution infrastructure.

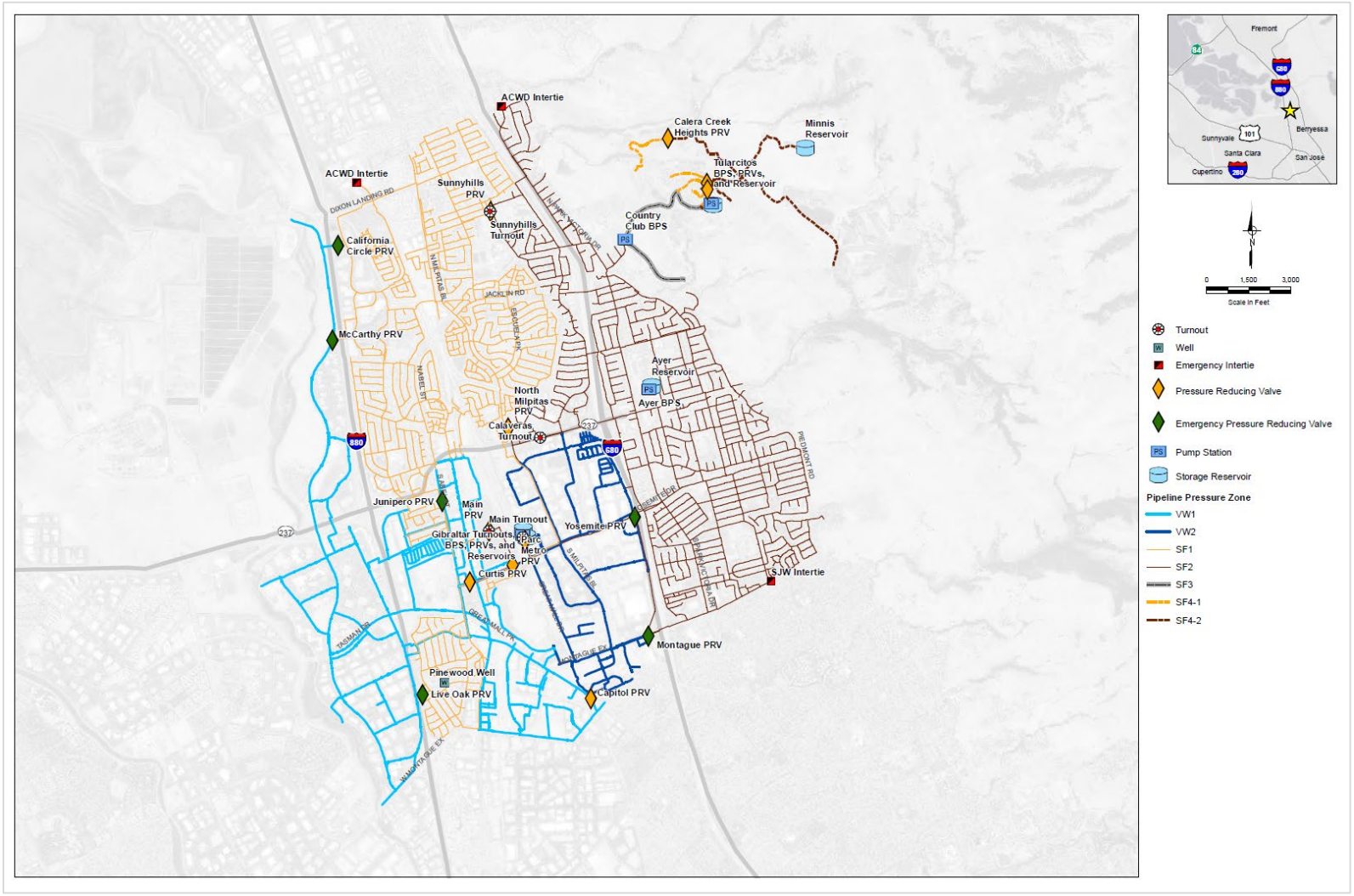
Figure 3-1. Potable Water Service Area Map



Source: West Yost. (2021). City of Milpitas Draft 2020 Water Master Plan.

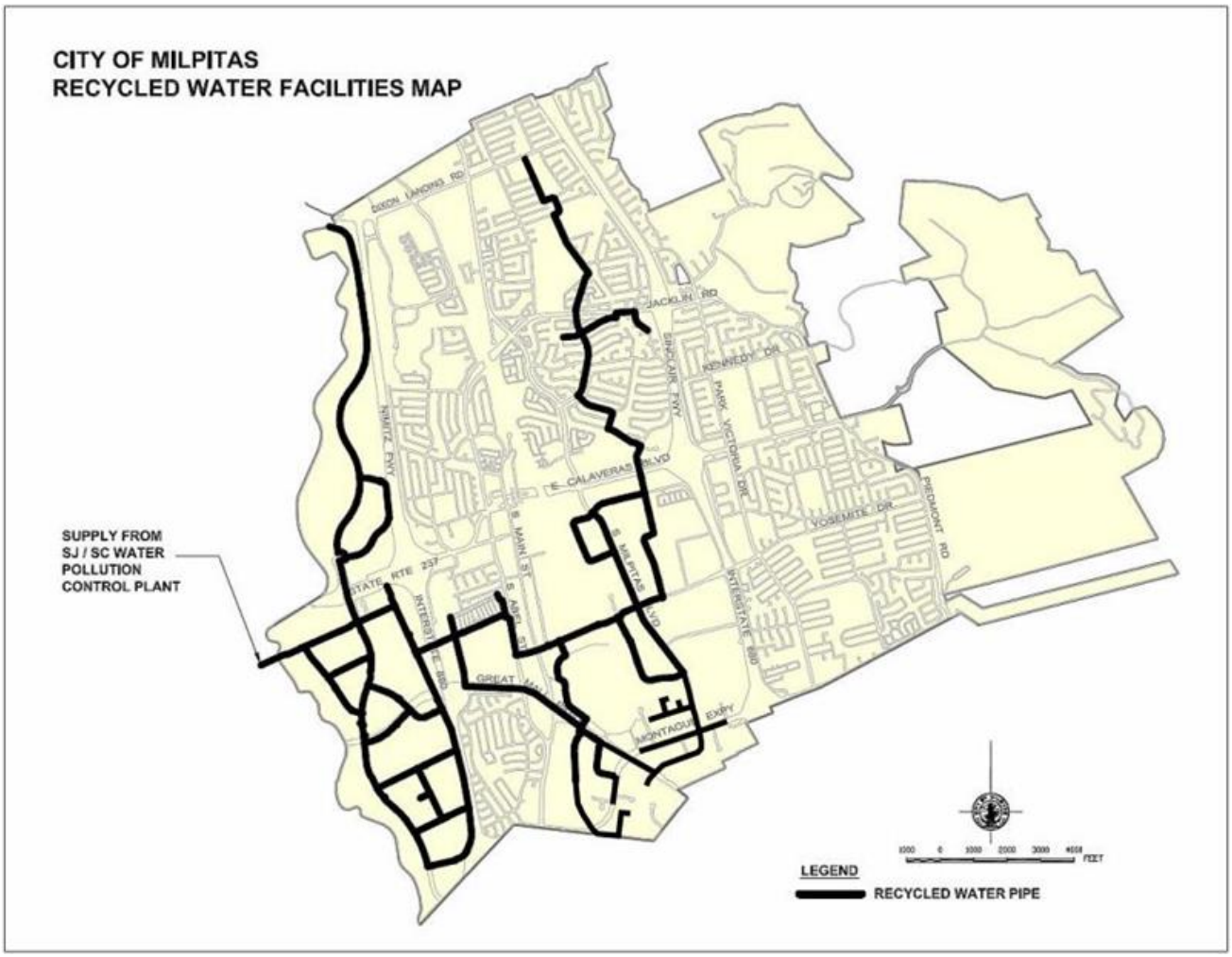
Figures 3-2 and 3-3 provide further details regarding the City's water system and infrastructure. Since the City has not had any service area changes since the 2015 UWMP, no service area change figure has been included. The City does not serve any parcels outside its jurisdiction, and since the jurisdictional boundary mirrors the service area no jurisdiction boundary map has been included. The City does not own or operate a Raw Water Distribution System, so no such map has been included. However, Valley Water has a Raw Water Transmission System, a map of which can be found in Chapter 3 of Valley Water's 2020 UWMP (pending publication in 2021).

Figure 3-2. Public Water System(s)



Source: West Yost. (2021). City of Milpitas Draft 2020 Water Master Plan.

Figure 3-3. City of Milpitas Recycled Water Distribution System

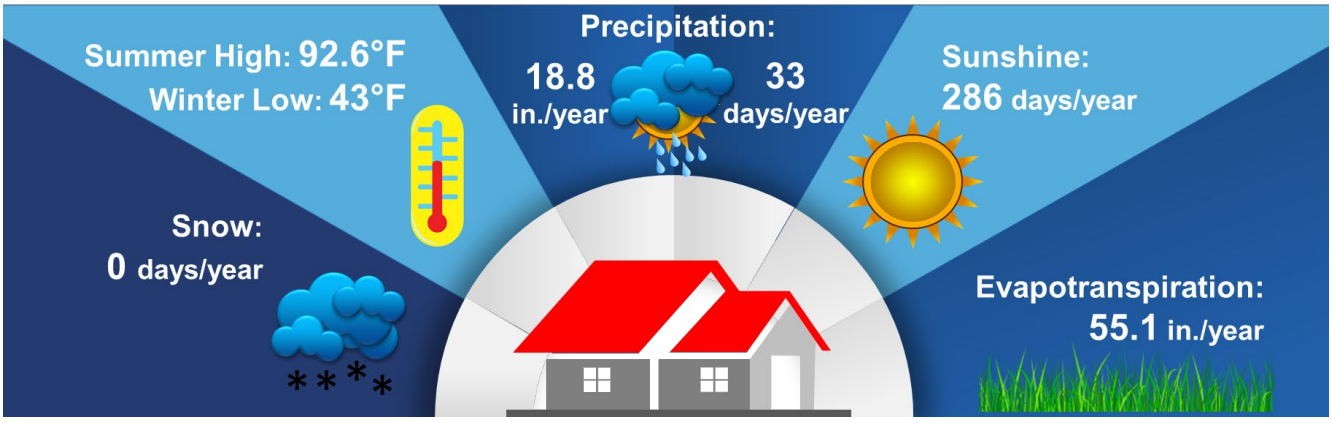


Source: City of Milpitas

3.3 Service Area Climate

The City's Mediterranean climate is characterized by warm, dry summers and mild wet winters. Annual precipitation averages about 16 inches. Annual ET_o in the region is 45.3 inches, and average temperature is 61 degrees Fahrenheit.

Figure 3-4. City of Milpitas Climate Characteristics



3.3.1 Climate Change Impacts on Water Demands, Supplies and Reliability

According to the National Academy of Sciences, climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun.
- Natural processes within the climate system (e.g., changes in ocean circulation).
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g. deforestation, reforestation, urbanization, desertification, etc.).

Climate change has the potential to directly impact the City's surface water supply and to indirectly impact groundwater supplies. The City is committed to adapting to climate change in a manner that protects the water resources for the maximum benefit while continuing to maintain a reliable, affordable, high quality water supply for the community. Several potential effects of climate change have been identified by the scientific community, including reduced winter snowpack, more variable and extreme weather conditions, shorter winters and increased evaporative demand. Additionally, climate change could affect water quality through increased flooding and erosion; greater concentration of contaminants, if any, in the water supply; and warmer water, which could lead to increased growth of algae and other aquatic plants. Rising sea level and increased flooding are also potential effects of climate change.

Changes in precipitation, temperature and atmospheric carbon dioxide affect crop evapotranspiration (ETo) and net irrigation water requirements (NIWRs). Global climate models (GCMs) have been used to project future climate change and impacts on crop water demands. Future conditions of warm-dry, warm-wet, hot-dry, hot-wet and central tendency were used. Three future periods for these five conditions were selected to project climate change effects and impacts, including the 2020s (2010-2039), 2050s (2040-2069) and 2080s (2070-2099). Santa Clara County is expected to see increasing temperatures, which could result in more extreme heat and drought events and increased demands. Future projections of precipitation are not as clear. Changes in precipitation timing and amounts could result in greater or lesser irrigation requirements to meet ETo demands.

Although there is consensus that climate change is occurring, and the effects of climate change are being observed, the timing and magnitude of climate change impacts remain uncertain. The City will mitigate climate change impacts with this uncertainty in mind through an adaptive management approach in cooperation with other regional stakeholders, municipalities within the City and neighboring water management agencies. Under adaptive management, key uncertainties will be identified and evaluated (e.g., April-July runoff as a percentage of annual runoff, total runoff, average temperature and reference evapotranspiration), and strategies will be developed to address the related climate change impacts. As the actual impacts occur, the strategies will be prioritized, modified as needed and implemented. In 2013, the City adopted a Climate Action Plan (PMC, 2013) and is currently drafting an updated CAP which will further evaluate impacts to the City.[7] SFPUC also is in process of completing a climate change impact report.

Additional Resources for Water Resources Planning for Climate Change

Much work has been done at state and regional levels to evaluate the effects and impacts of climate change and to develop strategies to support effective statewide, regional, and local water management in the future. The following resources provide additional information describing water resources planning for climate change:

- Progress on Incorporating Climate Change into Planning and Management of California's Water Resources. California Department of Water Resources Technical Memorandum, July 2006. (DWR, 2006)

[7] City of Milpitas. Climate Action Milpitas web page, accessed May 2021: https://climateactionmilpitas.org/home

- Climate Change and Water. Intergovernmental Panel on Climate Change, June 2008. (IPCC, 2008)
- Managing An Uncertain Future: Climate Change Adaptation Strategies for California's Water. California Department of Water Resources Report, October 2008. (DWR, 2008)
- 2009 California Climate Change Adaptation Strategy. California Natural Resources Agency Report to the Governor, December 2009. (CNRA, 2009)
- Climate Change and Water Resources Management: A Federal Perspective. U.S. Geological Survey, 2009. (USGS, 2009)
- Managing an Uncertain Future. California Water Plan Update 2009. Volume 1, Chapter 5, March 2010. (DWR, 2010a)
- Climate Change Characterization and Analysis in California Water Resources Planning Studies. California Department of Water Resources Final Report, December 2010. (DWR, 2010b)
- Climate Change Handbook for Regional Water Planning. Prepared for U.S. Environmental Protection Agency and California Department of Water Resources by CDM, November 2011. (CDM, 2011)
- Climate Action Plan—Phase 1: Greenhouse Gas Emissions Reduction Plan. California Department of Water Resources, May 2012. (DWR, 2012)
- Climate Change and Integrated Regional Water Management in California: A Preliminary Assessment of Regional Perspectives. Department of Environmental Science, Policy and Management, University of California at Berkeley, June 2012. (UCB, 2012)
- Managing an Uncertain Future. California Water Plan Update 2013, Volume 1, Chapter 5, October 2014. (DWR, 2014)
- West-Wide Climate Risk Assessments: Irrigation Demand and Reservoir Evaporation Projections, Technical Memorandum No. 86-68210-2014-01, U.S. Bureau of Reclamation, 2015. Available at https://www.usbr.gov/watersmart/baseline/docs/irrigationdemand/irrigationdemands.pdf. (USBR, 2015)
- California Climate Adaption Planning Guide. California Natural Resources Agency. Available at https://resources.ca.gov/CNRALegacyFiles/docs/climate/01APG_Planning_for_Adaptive_Communities.pdf. (CNRA, 2012)
- Perspectives and Guidance for Climate Change Analysis. California Department of Water Resources Climate Change Technical Advisory Group. (DWR, 2015)
- *San Francisco Bay Area Summary Report*, California's Fourth Climate Change Assessment. Available at https://www.climateassessment.ca.gov/. (Ackerly et al., 2018)
- Adapting to Rising Tides, Bay Area. Available at http://www.adaptingtorisingtides.org/project/art-bay-area/. (BCDC et al., 2020)
- Silicon Valley 2.0 Climate Change Preparedness Decision Support Tool. Available at http://siliconvalleytwopointzero.org/home.

3.4 Service Area Population, Demographics and Socioeconomics

Suppliers are required to report their current and projected service area populations in their UWMP. The Water Code does not require a specific methodology for projecting future populations, but it does require that the estimates of future population be based upon data from state, regional, or local service agency population projections.

3.4.1 Service Area Population

The City's actual 2020 population was 77,961 from the Department of Finance. The City is projected to grow over the next 25 years as shown in Table 3-1. The projected population numbers are based on current planning documents including the City's General Plan and Association of Bay Area Governments (ABAG). Any change due to new plans adopted after this writing will change the projections. The population estimates reflect the City's entire water service area.

Table 3-1. Retail Population – Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	77,961	90,400	98,100	106,000	113,200	120,400
NOTES: 2020 actual population value from the Department of Finance Table E-5 for the City of Milpitas. The projected population is from the Association of Bay Area Governments. Projected population has been rounded to the nearest 100.						

The expected population growth will come from redevelopment of two central areas defined in the Milpitas Gateway-Main Street Specific Plan (MGSP) and Milpitas Metro Specific Plan (MMSP). The MGSP outlines planned growth of a mixed-use community that includes high-density, transit-oriented housing and a central community "gathering place," while maintaining needed industrial, service, and commercial uses. The plan is long-range in nature, intended to guide development through the year 2030. Some land in the Gateway Area is undeveloped and readily developable over the short-term, while other parcels may be developed over a longer time frame.

The MGSP designation provides for the current and future uses of the Gateway area of Milpitas, in accordance with the Specific Plan. The Specific Plan sets forth the types, locations and intensities of land uses to be accommodated within the Gateway Area. Its purpose is to create an economically viable main street-type development that serves as a cultural hub of the City. A variety of uses are allowed in this designation, including entertainment, retail, commercial, residential, civic, cultural, office and high-density mixed use residential in a compact, walkable and unique centralized setting. All new development occurring within the MGSP designation is required to adhere to the development standards and guidelines established in the Specific Plan. These projections are subject to change as the MGSP is updated.

The MMSP outlines planned growth at the hub of the existing Santa Clara Valley Transportation Authority (VTA) Light Rail station and the recently opened Bay Area Rapid Transit (BART) station near the City's Great Mall shopping center. The plan calls for new residential and mixed-use developments. New residential neighborhoods will consist of mixed-use areas with commercial use on the ground floor and residential units above in high-density residential neighborhoods. Industrial areas will be transitioned to areas that support higher density mixed use. The MMSP designation creates a structure for a walkable, transit-oriented area with a mix of land uses, which encourages walking, biking and transit trips minimizes vehicle trips and reduces vehicle miles traveled (VMT). Development allowed within the Specific Plan area accommodates substantial growth, while minimizing impacts on local roadways and reduces urban sprawl at the periphery of the region. All new development occurring within the MMSP designation adheres to the development standards and guidelines established in the Specific Plan. These projections are subject to change as the MMSP is updated.

3.4.2 Other Social, Economic and Demographic Factors[8]

It is recommended that water suppliers describe social, economic and demographic factors of their service areas since recent trends or shifts in these factors can also affect water management and planning. Other demographic factors affecting water management in the City service area include economic development.

The City recently published its final Economic Development Strategy and Implementation Actions report (EDS) in May 2020. The EDS is a policy document that guides the City's economic development activities over the next five years. The EDS serves as Milpitas' road map to grow and diversify the City's economy, support businesses and workers, and improve quality of life in the community. Milpitas is home to 51,500 jobs, and has experienced strong job growth since 2009. Many different types of businesses are thriving in Milpitas, ranging from industries that are exporting goods and services globally, as well as industries that serve residents and workers in the city and region. Employers in Milpitas offer a wide variety of job opportunities, with a mix of high skill, high-wage workers in computer, mathematical, and engineering occupations, as well as middle-wage, middle-skill workers in manufacturing occupations. Milpitas also has a sizeable share of low-wage service industry jobs.

Water Use Sectors of the Customer Base are addressed in Section 4.

3.5 Land Uses within Service Area

There are approximately 14 square miles of land within the City boundaries. The primary land uses in the developed portions of the City of Milpitas are residential, commercial and industrial. The distribution of land uses provided by the City of Milpitas Planning Department are consistent with the City of Milpitas 2040 General Plan adopted March 9, 2021 (City of Milpitas, 2021) and are listed in Table 3-2 and Table 3-3. The 2040 General Plan was adopted prior to Association of Bay Area Governments (ABAG) publishing final Regional Housing Needs Allocation (RHNA) numbers and therefore not included in the adopted General Plan (see section 4.2.6). On May 20, 2021, the ABAG Executive Board approved the Final Regional Housing Needs Allocation (RHNA) Methodology and Draft Allocations. The ABAG Executive Board is expected to adopt final allocations in late 2021. Per the Draft RHNA Plan, the City of Milpitas' total allocation is approximately 6,700 new housing units. These new housing unit numbers are not reflected in Table 3-2 and Table 3-3.

[8] City of Milpitas. (2020). *Economic Development Strategy and Implementation Actions Final Report*, accessed June 2021: https://www.ci.milpitas.ca.gov/_pdfs/milpitas_eds_2020.pdf

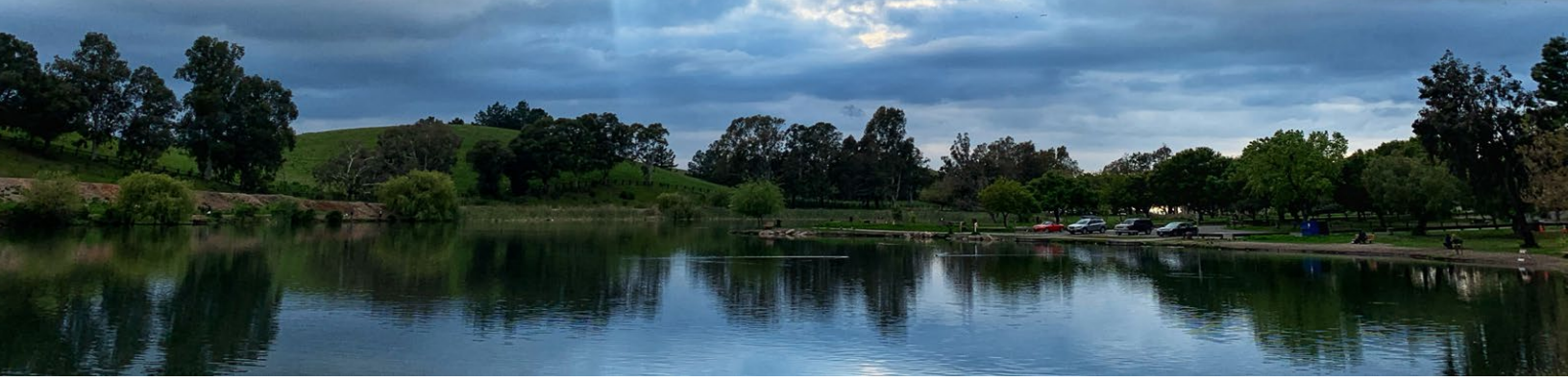
Table 3-2. City of Milpitas Current Land Use

Current Land Use	Area (acres)	Percent Total Land Use (%)
BVMU	88	1.02
GNC	347	4.05
HLD	260	3.03
HMD	188	2.19
HVL	609	7.11
HWS	138	1.62
INP	639	7.47
MFG	636	7.43
MFH	542	6.33
MFM	126	1.47
MHP	53	0.62
MXD	65	0.76
NA	1,633	19.07
PAO	14	0.17
PF	271	3.16
POS	983	11.48
RRMU	16	0.19
RSC	69	0.81
SFL	1454	16.98
SMD	131	1.53
TWC	119	1.39
URR	13	0.15
VHD	118	1.38
Waterways	49	0.58
TOTAL	**8,562**	**100**

BVMU	*Boulevard Very High-Density Mixed Use*	*MXD*	*Mixed Use District*
GNC	*General Commercial*	*PAO*	*Professional and Administrative Office*
HLD	*Hillside Low Density*	*PF*	*Public Facilities*
HMD	*Hillside Medium Density*	*POS*	*Permanent Open Space*
HVL	*Hillside Very Low Density*	*RRMU*	*Residential Retail High Density Mixed Use*
HWS	*Highway Services*	*RSC*	*Retail Subcenter*
INP	*Industrial Park*	*SFL*	*Single Family Low Density*
MFG	*Manufacturing*	*SMD*	*Single Family Medium Density*
MFH	*Multi-Family Residential High Density*	*TWC*	*Town Center*
MFM	*Multi-Family Residential Medium Density*	*URR*	*Urban Residential*
MHP	*Mobile Home Park*	*VHD*	*Multi-Family Residential Very High Density*

Table 3-3. City of Milpitas Future Land Use

Future Land Use	Area (acres)	Percent Total Land Use (%)
MFG	482	5.62
BPRD	558	6.51
NCMU	141	1.64
PF	193	2.25
MGSP	498	5.82
GNC	144	1.69
MMSP	317	3.71
MDR	271	3.17
VHDR	9	0.10
INP	157	1.83
HMD	232	2.70
TWC	115	1.34
HVL	2,023	23.62
VHDMU	3	0.04
MHP	53	0.62
WW	39	0.46
POS	958	11.19
ROW	54	0.63
LDR	1,451	16.95
NC	34	0.40
HLD	376	4.39
HDR	443	5.17
NA	13	0.15
TOTAL	**8,562**	**100**



4 WATER USE CHARACTERIZATION

Lay Description

The Water Code requires a description and quantification of water uses in the service area. It also requires that if recycled water is used or may potentially be used, it is described and quantified. Information from this chapter and Chapter 6 will be used to prepare the reliability assessments in Chapter 7.

This chapter describes and quantifies the City of Milpitas's past, current, and future water use projections through the year 2045, to the extent that records are available. Also presented in this chapter is a summary of drinking water pressurized distribution system water losses (i.e., leakage from pipes, under-registering meters, etc.). Future water use is based upon the City's past and current water use, combined with considerations of anticipated growth, new regulations, changing climate conditions, and trends in customer water use behaviors. A thorough analysis examined each water use sector for a variety of factors, then aggregated the information into a comprehensive projection of customer water use.

Tables 4-1 through 4-4 present the City's actual total 2020 water consumption and projected water demands through 2045 by water use sector. Tables 4-1 and 4-4 show the City's most recent validated potable water audit results for 2019 was 346 MG and 11.9% of non-revenue water as percent by volume of the total "Water Supplied."

4.1 Non-Potable Versus Potable Water Use

The City purchases recycled water from SBWR and operates and maintains the recycled water distribution facilities within City boundaries. Section 6.2.5 of this UWMP discusses the City's recycled water in greater detail. Table 4-3 summarizes total water use projections, including recycled water.

4.2 Past, Current, and Projected Water Use by Sector

This section will identify water use, to the extent that records are available, for at least each of the 10 water use sectors identified in Water Code Section 10631(d). Additionally, a narrative description of how water uses are calculated and how water use projections are estimated is included.

The DSS Model was used to projected long-term demand, through 2045, based on expected service area growth for both population and employment. Demand forecasts were developed for each agency to account for conservation from passive (i.e., from codes/standards) and active conservation programs. Based on this analysis, water demands were projected after accounting for the effects of the existing plumbing code and future active conservation savings. The City's conservation measures are discussed in Chapter 9 – Demand Management Measures. BAWSCA also evaluated conservation measures for potential future regional implementation.

For the demand analysis, the City provided data from metering from 1995 through 2019 its water rates, water use sectors, monthly water consumption and water conservation, and additional information for historical and projected use analyses. Based on the analyses in the City's DSS Model, the City describes its past, current, and projected water use for its seven water use sectors, in five-year increments through 2045. As shown in Table 4-1, in calendar year 2020, the City's service area used a total of 3,073 million gallons (MG) of potable water.

In 2020, of the City's total potable water use, 34.8% was in the single-family residential sector, while 26.1% was in multi-family sector. In the Commercial, Institutional, and Industrial sector (CII), 10% was Commercial, 12.8% was Industrial, 2.1% was Institutional, 3.2% was City, 10.5% was Irrigation, and 0.6% was Other.

4.2.1 Water Use Sectors Listed in Water Code

The following water sectors are listed in the Water Code following the order found in the Water Code. Additional sectors or subdivisions of these sectors are included as needed to reflect unique conditions that may apply to certain sectors or subsectors not listed in the Water Code.

Single-Family Residential

This is defined as a single-family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling.

The City has approximately 12,300 single-family accounts. Among the City's new residential development are some single-family units. However, overall, the City's newer housing is shifting from the traditional suburban single-family home with individual yards to urban high-density housing units.

Multi-Family

This is defined as multiple dwelling units contained within one building or several buildings within one complex.

The City has approximately 1,900 multi-family accounts serving 9,915 dwelling units. These share outdoor space, and some are combined with retail and office space as described in the specific plans for future development around the BART station. This demand sector is projected to have significant growth as a result of the numerous residential and mixed-use developments under construction, approved, pending entitlement or in plan review.

The City includes mobile homes in the Multi-Family classification.

Commercial

This is defined as a water user that provides or distributes a product or service. Water Code 10608.12(d).

The City has a complex mix of commercial customers, ranging from beauty shops, supermarkets, and gas stations to multi-story office buildings, outlet and regional shopping centers, and high-volume restaurants and other facilities serving the visitor population.

Industrial

This is defined as a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. Water Code Section 10608.12(h). The following link is to the NAICS website.[9]

The City retains research & development facilities, along with some food preparatory facilities.

Institutional/Governmental

This is defined as a water user dedicated to public service. This type of user includes, among other users, higher-education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. Water Code Section 10608.12(i).

[9] North American Industry Classification System website, accessed June 2021: https://www.census.gov/naics/

The City has a stable institutional/governmental sector, including local government, schools, a county correctional facility and outpatient medical facilities.

Landscape

This is defined as water connections supplying water solely for landscape irrigation. Such landscapes may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation.

Irrigation demand is anticipated to increase due to continued development of vacant lands and redevelopment in the commercial and industrial sectors. However, landscape conversions to recycled water and increased efficiency in irrigation systems is expected to offset future increases in potable water demand for landscaping.

Sales to Other Agencies

As a retailer, the City purchases water for its own use and does not sell water to other agencies; therefore, this section is not applicable.

Groundwater Recharge

This is defined as the managed and intentional replenishment of natural groundwater supplies using man-made conveyances such as infiltration basins or injection wells. Water used for groundwater banking or storage may also be reported using this sector. If all, or a portion of, the groundwater recharge water is subsequently pumped out of the basin in the same year, that water will be reported by the supplier as a supply from groundwater.

The City does not have groundwater recharge; therefore, this section is not applicable.

Saline Water Intrusion Barrier

This is defined as the injection of water into a freshwater aquifer to prevent the intrusion of saltwater.

The City does not have a saline water intrusion barrier; therefore, this section is not applicable.

Agricultural

This is defined as water used for commercial agricultural irrigation.

The City does not have agricultural irrigation; therefore, this section is not applicable.

Distribution System Water Loss

Distribution system water losses (also known as “real losses”) are the physical water losses from the water distribution system and storage facilities, up to the point of customer consumption. The water loss projections were developed assuming the ratio of water loss to other categories of demand remains constant over the planning horizon. See Section 4.2.4 for further details.

4.2.2 Water Use Sectors in Addition to Those Listed in Water Code

The water use sectors described below are not specifically listed in, nor required by the Water Code.

Exchanges

Water exchanges are typically water delivered by one water user to another water user, with the receiving water user returning the water at a specified time, or when the conditions of the parties’ agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or can include payment and the return of water. The water returned may or may not be an even exchange. Water can be returned on a one-for-one basis or by another arrangement (e.g., for each acre-foot of water received, two are returned).

For more information on this water use sector, refer to Section 6.2.7.

Surface Water Augmentation

This is defined as the planned placement of recycled water into a surface water reservoir that is used as a source of domestic drinking water supply.

The City does not participate in surface water augmentation; therefore, this section is not applicable.

Transfers

The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights. Transfers can be between neighboring Suppliers or across the state, provided there is a means to convey or store the water. A water transfer can be a temporary or permanent sale of water or a water right by the water right holder, a lease of the right to use water from the water right holder, or a sale or lease of a contractual right to water supply. Water transfers can also take the form of long-term contracts of the purpose of improving long-term supply reliability. Some Retail Suppliers transfer water to other suppliers.

For more information on this water use sector.

Wetlands or Wildlife Habitat

This is defined as water used for a managed environmental use to improve an environmental condition.

The City does not manage a wetlands or wildlife habit program; therefore, this section is not applicable.

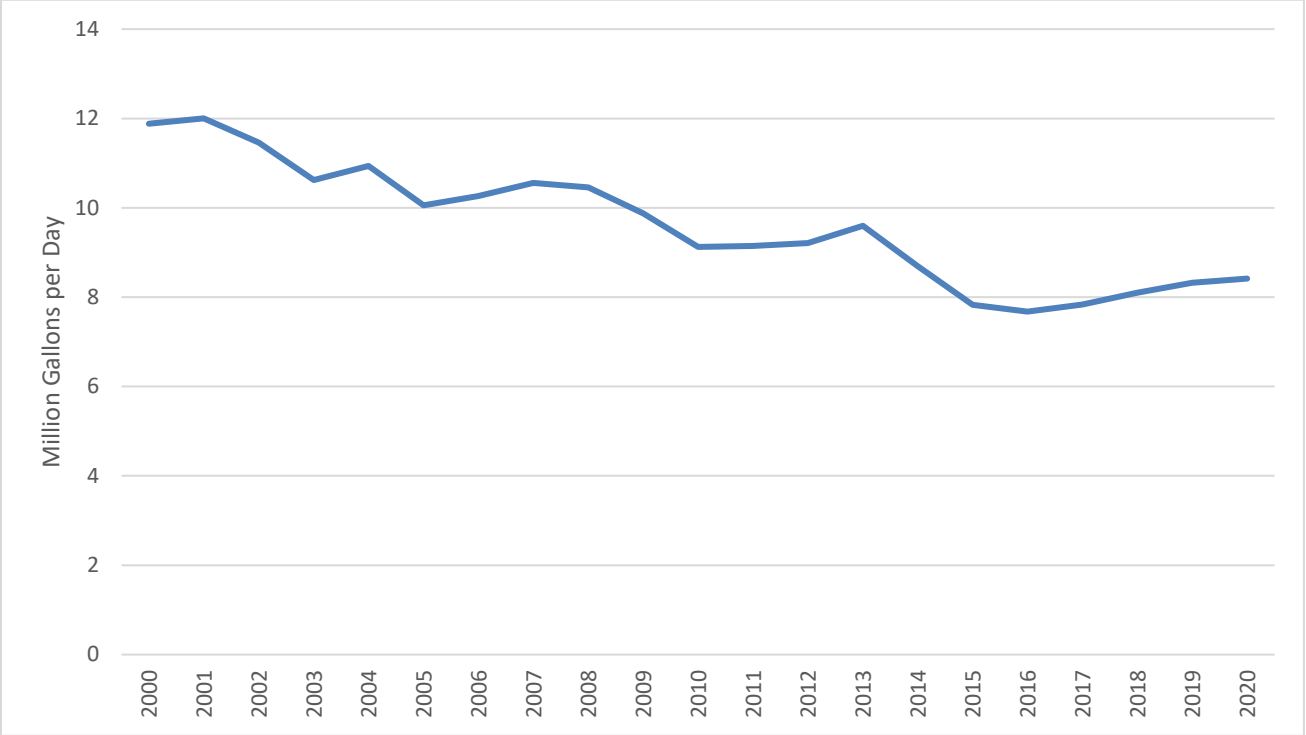
Other

The City has approximately 550 fire service accounts. The Other usage shown in the tables in this chapter is water use associated with those accounts.

4.2.3 Past Water Use

While not part of the DWR UWMP Reporting Tables, the Water Code requires Retail Suppliers to quantify past water use. Past water use is valuable during development of projected uses as it helps create an understanding of water use trends; effects of temporary use restrictions imposed during the most recent prolonged drought, and recovery from such temporary restrictions; effects of long-term demand management measures; and other pertinent water use factors. The City's historical water use is part of the data that was used for The City's DSS Model and for BAWSCA's Demand Study, which identify demand and conservation projections through 2045. The DSS Model analyzed The City's historical data from 2000–2020 to assess the impacts of certain factors (e.g., water rates, economic conditions, and weather) on water demands.

Figure 4-1. City of Milpitas Historical Water Demand in Million Gallons per Day



4.2.4 Distribution System Water Loss

Distribution system water losses (also known as "real losses") are the physical potable water losses from the pressurized water distribution system and the storage facilities up to the point of delivery to the customer's system (e.g., up to the residential water meter) calculated using the American Water Works Association (AWWA) Method (Title 23 California Code of Regulations [CCR] Section 638.1 et seq.). This is the sum of the AWWA Method real losses and apparent losses.

In the 2020 UWMP, distribution system water loss for each of the five years preceding the plan update must be reported (Water Code Section 10631(d)(3)) in accordance with the rules adopted pursuant to Water Code Section 10608.34. Table 4-4 was completed using the values calculated in the AWWA worksheet and submitted to DWR for each of the prior five years.

In order to better understand the nature of non-revenue waters, the City completed its first detailed Water Audit and Component Analysis of Real and Apparent Losses in 2015, utilizing the AWWA methodology. The AWWA method uses known factors, such as system input volume, authorized consumption, and revenue water, to determine water losses. These losses are further categorized into two types:

- Apparent losses – Due to meter inaccuracies, data errors and theft. The water is consumed but is not properly measured and accounted for.
- Real losses – Due to system leaks and breaks.

Through these efforts and other measures, real losses have been reduced significantly. The Water Audit for calendar year 2019 indicates total losses, apparent and real, of 346.223 million gallons, with 11.9% of non-revenue water as percent by volume of the total "Water Supplied." Table 4-4 shows the results of the Water Audit for the most recent period for which data is available, January 1, 2019 through December 31, 2019. Screen shots of the Water Audit reports from the last five years are included in Appendix B.

4.2.5 Current Water Use

This section presents current water use as ascertained by analyzing information such as meter data, billing records, and others as well as recently submitted eAR monthly reports. Current water use is entered into Table 4-1 provided to record current gross water use, not including recycled water use; recycled water use is detailed in Chapter 6 and summarized in Table 4-3 for total water use calculations.

Optional Planning Tool – Current Use

For the 2020 UWMP preparation, DWR has created an optional Planning Tool that suppliers can use to record and assess their data. The DWR Planning Tool can be used by water agencies, but it is not required.

As previously stated, The City is using its updated DSS Model as the key reference for current water use since past data and demand projections for The City were analyzed in detail during the model's development for the 2019 BAWSCA Demand Study. See Appendix C for an overview of the DSS Model.

Table 4-1. Demands for Potable and Non-Potable Water – Actual

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	**2020 Actual**		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Single Family		Drinking Water	965
Multi-Family	Duplex, Townhouse, Condo, Mobile Homes	Drinking Water	724
Commercial		Drinking Water	276
Industrial		Drinking Water	355
Institutional/Governmental	Schools, Government or Church and City Domestic Accounts	Drinking Water	146
Landscape		Drinking Water	290
Other	Fire	Drinking Water	15
Losses		Drinking Water	302
		TOTAL	3,073
[1] Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4. *[2] Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: 1. Non-revenue water (losses) is calculated as the difference between total customer category use and production. 2. Institutional/Governmental combine institutional and City customer categories.			

4.2.6 Projected Water Use

This section will present projected water use for each sector, in five-year increments through 2045. Projected water use is entered into Table 4-2. Water use projections were developed using long-term population and employment growth projections, 2018 base water use which includes plumbing codes and standards, and short-term drought recovery for 2019-2023. The short-term drought recovery was based on an econometric model, which included the City's specific economic conditions, retail water rates, historical population, monthly production data from 1995-2019, and impact of drought restrictions implemented during the 2014-2017 period. The econometric model generated water demand forecast to 2023 and was developed during the City's participation in the 2020 BAWSCA Demand Study[10] as described in further detail in the following BAWSCA text.

BAWSCA Standard Text

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.

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.

The demand model used to prepare the projections is known as the Decision Support System (DSS Model). The initial step in the DSS Model was to establish the base-year water demand at the end-use level by breaking down total historical water use for each type of water service account (single-family, multi-family, commercial, industrial and the like) to specific end uses, such as toilets, faucets, showers and irrigation. Forecasting future demand involved determining the growth in the number of water service accounts. Once the rates of change were established, they were entered into the model and applied to those account types and end-use water consumption.

The next step in developing future demand was to evaluate the cost effectiveness and water savings of a variety of potential water conservation measures to determine how much of the projected demand can be reasonably met through demand management. The potential water conservation savings were deducted from the total demand. The model also incorporated the effects of plumbing and appliance codes, or so-called passive savings, on existing and future accounts, as well as anticipated land use changes, densification and industrial development anticipated in the City and supported by General Plan policies and strategies.

[10] Phase III Final Report (BAWSCA, 2020): http://bawsca.org/uploads/pdf/BAWSCA_Regional_Water_Demand_and_Conservation%20Projections%20Report_Final.pdf

Development Factors Affecting Water Demand

As noted, the water demand projections summarized in Tables 4-2 and 4-3 incorporate anticipated development factors within the City, affecting both residential and non-residential sectors.

The potable water demand projections are built off of the City's 2020 DSS Model, which estimated total water demand at year 2045 to be 4,917 million gallons (DWR Table 4-3). Of the total demand, 4,517 million gallons (DWR Table 4-2) is anticipated to be potable and 400 million gallons to be recycled water (DWR Table 6-4).

Since completion of the City's Draft 2020 Water Master Plan, ABAG is in the process of identifying the RHNA numbers. As part of RHNA, the California Department of Housing and Community Development, or HCD, determines the total number of new homes the Bay Area needs to build in order to meet the housing needs of people at all income levels. The ABAG Executive Board will adopt Final Allocations for 2023 through 2031 during late 2021, taking into consideration the results of the appeals process.

Table 4-2. Demands for Potable and Non-Potable Water – Projected

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Single Family		1,110	1,100	1,080	1,070	1,070
Multi-Family	Duplex, Townhouse, Condo, Mobile Homes	810	900	1,000	1,090	1,170
Commercial		530	540	540	550	560
Industrial		450	460	460	470	480
Institutional/Governmental	Schools, Government or Church and City Domestic Accounts	210	230	250	270	280
Landscape		390	400	430	440	460
Losses		420	440	460	480	490
Other	Fire	5	5	6	6	7
	TOTAL	3,925	4,075	4,226	4,376	4,517

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*
[2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Projected demands include passive savings (plumbing code) and do not include active conservation. Values have been rounded to the nearest 10 MG when values exceeded 50 MG.

20-Year Planning Horizon

In accordance with Water Code Section 10635(a), all Suppliers will need to report their projected water use, in five-year increments through 2040 and encouraged to project through 2045. As shown in Table 4-2, the City projects its water use through 2045.

They City provided its projected demands to Valley Water in five-year increments through 2045. Additionally, through BAWSCA, the City provided its projected demands to the SFPUC, in five-year increments through 2045. The BAWSCA Demand Study, that is available to the SFPUC, incorporates projected water savings from the plumbing code, standards, ordinances, and projected demands due to growth in the City's service area.

Additionally, in accordance with Water Code Section 10603(d)(2), the City reports its projections in Section 4.2.6 for each of the water use sectors identified in Section 4.2.1.

Table 4-3. Total Water Use

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	3,073	3,925	4,075	4,226	4,376	4,517
Recycled Water Demand[1] *From Table 6-4*	357	400	400	400	400	400
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]	-	-	-	-	-	-
TOTAL WATER USE	3,430	4,325	4,475	4,626	4,776	4,917
[1]Recycled water demand fields will be blank until Table 6-4 is complete. *[2] Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*						

Water Year Types

For water supply reliability, the City is required to characterize the *normal* water use for estimating normal water supply reliability and reliability in the event of a single dry year. Suppliers may choose to characterize the *normal* year water use in whatever manner makes the best planning sense.

The City uses 2018 as the representative year for its "normal" year. The years were chosen since they were not affected by drought or other unusual environmental or economic circumstances. The City's *normal year* and *single dry year* data are reported in Tables 7-1, 7-2, and 7-3.

Codes and Other Considerations Used in Projections

Water savings from codes, standards, ordinances, and land use planning, also known as *passive savings*, generally decrease water use for new and future customers compared to existing customers. However, some ordinances and standards may also apply to existing customers, such as plumbing code changes that result in lower water use when existing customers replace fixtures and appliances. Suppliers are required to state the extent to which passive savings are considered in these water use projections; this will be noted in Table 4-5.

The water demand projections in Table 4-2 are based on analysis of historic metering data and projected growth in population, jobs, and development that are presented in the City's 2020 DSS Model. The projections in Table 4-2 include reductions due to "plumbing code" upgrades, reflect on-going change-outs of existing plumbing fixtures for more water efficient devices, and the implementation of conservation measures selected by the City.

Optional Planning Tool – Projected Use

DWR developed optional "Planning Tool" worksheets for suppliers to facilitate their review of water use data.

In this 2020 UWMP, the City is using data from its 2020 DSS Model because during development the City's past data and demand projections were analyzed in detail.

4.2.7 Characteristic Five-Year Water Use

A critical component of the new statutory language in Water Code Section 10635(b) is the requirement to prepare the five-year Drought Risk Assessment (DRA), found in Chapter 7. This five-year DRA can also be used to provide the water service reliability assessment for a drought lasting five years.

As a first step DWR recommends that the expected gross water use for the next five years without drought conditions (also known as *unconstrained demand*) be estimated. These numbers can then be adjusted to estimate the five-years' cumulative drought effects.

4.3 Worksheets and Reporting Tables

The DWR Submittal Tables relevant to customer water use have been included in the appropriate subsections of this chapter rather than here. The included tables are similar to those completed by the City for its 2015 UWMP. The 2020 tables do contain some modifications to reflect Water Code changes, the 2020 timeframe, and to provide additional details. In addition to including the tables in this 2020 UWMP document, an electronic version of just the tables was submitted to DWR.

4.3.1 Optional Planning Tool Use Analysis Worksheet

In this 2020 UWMP, the City is using data from its 2020 DSS Model because during the DSS Model development the City's past data and demand projections were analyzed in detail.

4.3.2 DWR 2020 UWMP Submittal Tables

Tables 4-1 through 4-5 are part of DWR's electronic reporting system for data input and are used by DWR to evaluate regional and statewide water use information and summarize data for DWR-required Legislative reports. These are the standardized tables for electronic submittal of the City's 2020 UWMP.

Earlier in this chapter, Tables 4-1 through 4-3 present the City's actual total 2020 water consumption and projected water demands through 2045 by water use sector. Table 4-4 also shows the City's validated water audit results, showing that the 2019 water loss was 11.9% of the total water production, as shown in the screen shots in Appendix B.

Table 4-4. 12-Month Water Loss Audit Reporting

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
01/2019	346
01/2018	326
01/2017	279
01/2016	433
12/2015	280
[1] Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet. *[2] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES: 12/2015 audit was an internal Audit by the City of Milpitas. First audit submitted to the state was 01/2016.	

4.4 Water Use for Lower Income Households

The City is required to include the projected water use for lower income households (i.e., those with income below 80% of area median income, adjusted for family size) in its 2020 UWMP. This section documents the City's best effort to do so. However, please note that the City does not use this estimate for any planning purposes. Projected water use by lower income households is estimated by multiplying the projected housing need for the City by the average household size and assumed per capita water use. The most recent source of data for low income housing units for the City is the 2014 Housing Element. The Housing Element is planned for an update in late 2021, which covers growth between 2023-2031.

Water usage for lower income housing units is included in the overall water demand projections, shown in Tables 4-2, 4-3 and 4-5 documents the fact that lower income residential water demands, as well as passive water savings estimates, are included in the projections.

Table 4-5a. Inclusion in Water Use Projections

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	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.	Appendix C, Table C-1
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES: (1) As indicated in Table 4-5, estimates of future water savings from passive (plumbing code) savings are included in the projections in this UWMP. The 2020 actual water use already reflects significant water savings compared to historical use. During the 2014-2017 drought, the City made several amendments to its water conservation ordinance that assisted in achieving these water savings. Water projections do not include savings from active conversation. (2) According to the April 2015 City of Milpitas 2015–2023 Housing Element, low-income households represent 41% of City of Milpitas households. See Table 4-5b for low income residential demand. The City of Milpitas plans to update the Housing Element in the year 2021 for 2023-2031, per the draft HCD Regional Housing Need Determination (ABAG, 2020): https://www.hcd.ca.gov/community-development/housing-element/docs/abagrhna-final060920(r).pdf. At the time of the writing of this UWMP, the appeals process was not final. Final numbers will not be released until winter of 2021. As a result, there could be future changes to the 2021 Housing Element. https://www.ci.milpitas.ca.gov/milpitas/departments/building-and-safety-department/housing-3/housing-policy-plans/	

Table 4-5b. Projections of Future Low-Income Household Water Use

Projections of Future Low-Income Household Water Use, MG					
Water Use	**2025**	**2030**	**2035**	**2040**	**2045**
Estimated Very Low and Low-Income Household Water Use	790	820	850	890	920
Notes: Lower income demand is embedded in the presented demand projection estimates. According to the April 2015 City of Milpitas 2015–2023 Housing Element Update, low-income, very low, and extremely low-income households represent 41% of City of Milpitas households. Projected low-income demands represent 41% of projected single-family and multi-family residential demands. A lower income household has an income below 80 percent of area median income, adjusted for family size. The median income for a four-person household in Santa Clara County was $105,500 in 2013 and the income limit for a low-income household was $84,900. Values have been rounded to the nearest 10 MG.					

4.5 Climate Change Considerations

Type of climate change impacts that were considered in the water use projections include water demands and temperature increases. The scientific or other information the projections are based on is described below in the next section.

4.5.1 Water Demand Impacts and Analysis

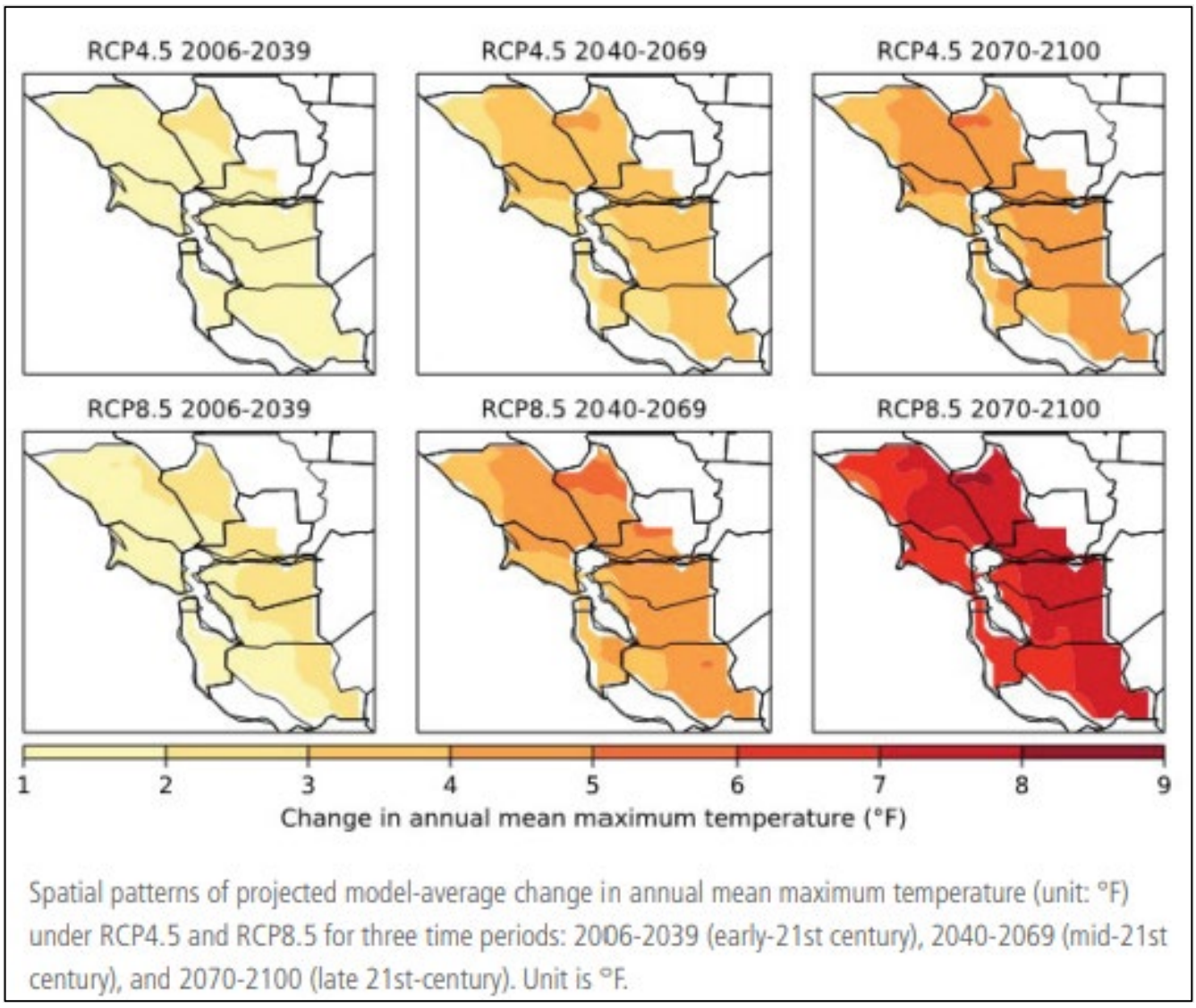
The Public Policy Institute of California has predicted that five climate pressures will impact the future of California's water management: warming temperatures, shrinking snowpack, shorter and more intense wet seasons, more variable precipitation, and rising seas.[11] As of 2019, some of these pressures are already apparent. The climate impact on water supply is predicted to significantly exceed the impact on water demand.

Precipitation in the Bay Area will continue to have high variability year to year, leading to very wet years sometimes and very dry years at other times. The largest winter storms in the Bay Area will likely become more powerful and potentially more damaging. Due to a predicted increase in temperature in the future, it is assumed that California and the Bay Area will experience longer and deeper droughts, which could impact water supply.

The International Panel on Climate Change (IPCC) develops several future climate change scenarios referred to as Representative Concentration Pathways (RCP). RCP 4.5 represents a mitigation scenario where global CO2 emissions peak by the year 2040. RCP 8.5 represents the business-as-usual scenario where CO2 emissions continue to rise throughout the 21st century. The following figure shows the spatial changes in annual mean of maximum daily temperatures across nine Bay Area counties under RCP 4.5 and RCP 8.5.

[11] Public Policy Institute of California (PPIC). (2020). Priorities for California's Water, accessed June 2021: https://www.ppic.org/publication/priorities-for-californias-water/

Figure 4-2. Bay Area Historical and Projected Mean Maximum Temperatures



Spatial patterns of projected model-average change in annual mean maximum temperature (unit: °F) under RCP4.5 and RCP8.5 for three time periods: 2006-2039 (early-21st century), 2040-2069 (mid-21st century), and 2070-2100 (late 21st-century). Unit is °F.

Source: Ackerly et al. (University of California, Berkeley), 2018.

According to California's Fourth Climate Change Assessment San Francisco Bay Area Summary Report,[12] the Bay Area's historical temperature increased 1.7 degrees Fahrenheit from 1950 to 2005. It is predicted that annual mean maximum temperatures will increase by 1 to 2 degrees Fahrenheit in the early 21st century from the years 2006 to 2039, then will increase by an additional 3.3 degrees Fahrenheit in the mid-21st century from 2040 to 2069. This increment for the mid-21st century rises to 4.4 degrees Fahrenheit if the Bay Area remains under the high emissions scenario of "business-as-usual."

The above IPCC report temperature change is broken over two time periods (early-21st century and mid-21st century). For the BAWSCA Demand Study, the time period of focus was 2019-2045. Therefore, it was necessary to combine the two time periods to get an overall temperature change for the length of the BAWSCA Demand Study.

[12] Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). (2018.) *San Francisco Bay Area Summary Report.* California's Fourth Climate Change Assessment. Publication number: CCCA4-SUM-2018-005. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-005_SanFranciscoBayArea_ADA.pdf

Following are the considerations and methodology used to calculate the average annual temperature change for each of the IPCC report time periods:

- Early 21st Century (2006-2039) had an estimated temperature increase of 1 to 2 degrees Fahrenheit that was averaged to 1.5 degrees Fahrenheit. For the 33-year time period, this equates to an average annual temperature increase of 0.045 degrees Fahrenheit.
- Mid-Century (2040-2069) was estimated to have a temperature increase of 3.3 degrees Fahrenheit. For the 29-year time period, this equates to an average annual temperature increase of 0.114 degrees Fahrenheit.

Calculating the increase within each time period for the BAWSCA Demand Study required three steps:

- **Step 1:** Calculate a value for the 20 years from 2019 to 2039, which equates to an estimated temperature change of 0.95 degrees Fahrenheit.
- **Step 2:** Calculate a value for the five years from 2040 to 2045, which equates to an estimated temperature change of 0.68 degrees Fahrenheit.
- **Step 3:** Finally, the two values from Step 1 and Step 2 were added together to get a total temperature increase of 1.7 degrees Fahrenheit (rounded) for 2019-2045.

In summary, for the BAWSCA Demand Study, the previously mentioned predicted annual mean temperature increase in the early 21st century of 1.7 degrees Fahrenheit[13] was incorporated into the demand forecast for all scenarios for the time period of 2019 to 2045.

4.5.2 Precipitation

Due to a predicted increase in temperature in the future, California and the Bay Area will likely experience longer and deeper droughts, which could impact the water supply. According to the San Francisco Bay Conservation and Development Commission (BCDC), historical records show that sea level in San Francisco Bay has risen 18-20 cm (7 inches) over the past 150 years.

BAWSCA Standard Text

Per the SFPUC Draft UWMP, dated April 2021 (SFPUC, 2021): Currently, the SFPUC is conducting a Long-term Vulnerability Assessment which assesses 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 RWS'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 are difficult to predict, but nonetheless they need to be considered in SFPUC planning. To address this planning challenge, the assessment uses a vulnerability-based planning approach to explore a range of future conditions to identify vulnerabilities, and to 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. This study is expected to be completed in the Summer of 2021.

[13] Ibid.

4.5.3 Sea Level Rise

The updated 2018 *State of California Sea-Level Rise Guidance*,[14] recommends for projects in the San Francisco area with a lifespan to 2050, under a high-emissions scenario (RCP 8.5), using three risk projections until 2050:

- Low risk aversion projection: 1.1 feet
- Medium-high risk aversion projection: 1.9 feet
- Extreme risk aversion projection: 2.7 feet

For highly vulnerable or critical assets that have a lifespan beyond 2050 and would result in significant consequences if damaged, the extreme risk aversion projection, is recommended to be included in planning analyses. The range of low, medium-high, and extreme risk aversion projections should be evaluated across the range of high and low emissions scenarios (RCP 8.5 and RCP 2.6, respectively). For example, for a project with a lifespan to 2100, the recommended range of projections is as follows:

- Low risk aversion projection: 2.4 - 3.4 feet
- Medium-high risk aversion projection: 5.7- 6.9 feet
- Extreme risk aversion projection: 10.2 feet

SFPUC, views assessment of the effects of climate change requiring regular updates to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. Both the SFPUC and BAWSCA participated in the 2013 update of the Bay Area Integrated Regional Water Management Plan (BAIRWMP), which included an assessment of the potential climate change vulnerabilities of the region's water resources and identified climate change adaptation strategies.

The City is currently developing an update to the Climate Action Plan which will evaluate climate change risks and adaptation measures needed city-wide.

A discussion of the potential impacts of climate change on water supply is located in Section 6.2.10.

[14] California Natural Resources Agency and California Ocean Protection Council. (2018). *State of California Sea-Level Rise Guidance*, 2018 Update. http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf

5 SB X7-7 BASELINES AND TARGETS

Lay Description

With the adoption of the Water Conservation Act of 2009, also known as the SB X7-7, the state of California was required to reduce urban per capita water use by 20 percent by the year 2020. California Water Code (Water Code) Section 10608.16(a) states: "The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020." In order to meet this urban water use target requirement, each retail supplier completing a UWMP is required to determine its baseline water use as well as its target water use for the year 2020. To assist this process, DWR established methods for suppliers to determine their targets and baselines. There are four Target Methods available to suppliers for determining their urban water use target. For further information on the technical components of these calculations, DWR's guidelines can be found in its *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* document (DWR, 2016).[15]

The goal of this chapter is to allow the City of Milpitas to describe how it calculated its 2020 urban water use target and its baseline water use, in gallons per capita per day (GPCD), as well as to identify which Target Method was used (see Section 5.2.1). In addition, this chapter allows the City to demonstrate its compliance with this target reduction (by December 31, 2020). The details of this form are also summarized in Tables 5-1 and 5-2 in this chapter.

GPCD Terminology

When determining water use in a UWMP, two terms are often used interchangeably:

- Daily Per Capita Water Use – This is the amount of water used per person per day. In UWMP calculations, this is total water use within a service area, divided by population, and it is measured in gallons.
- GPCD – This is the "daily per capita water use" measured in gallons. Therefore, the term commonly used when referring to "daily per capita water use" is "gallons per capita per day" or GPCD.

It is important to distinguish GPCD (as used in UWMPs) from the Residential GPCD (R-GPCD) that is used in some reporting to the State Water Board.

- GPCD is the total water use from all sectors within a service area (residential, commercial, institutional, and any others) minus allowable exclusions, then divided by the population. This is used in UWMPs.
- R-GPCD is only a part of the GPCD; it is the estimated residential water use in a service area divided by population.

5.1 Guidance for Wholesaler Suppliers

The City of Milpitas is a retailer not a wholesaler; therefore, this section is not applicable.

[15] DWR. (2016). *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. https://cadwr.app.box.com/s/5rbv5gjm881dxonycnb7u2253a0l6e8l

5.2 Updating Calculations from 2015 UWMP to the 2020 UWMP

Section 5.2 only applies to Suppliers that need to update their 2020 Target and/or Baseline because of changes to their distribution area per *Water Code Section 10608.20 (g)*. The City of Milpitas does not need to update its Target or Baseline, as its distribution system and service area boundary did not change. Therefore, the City is using the same Baseline and Target GPCD that was developed in its 2015 UWMP, making this section not applicable to the City.

5.2.1 Update of Target Method

There are four different methods a supplier can use to calculate their target. Suppliers must use the same target method in their 2020 UWMP that they used in their 2015 UWMP if they need to update values. The City is not updating its Target Method and is using the same Baseline and Target GPCD that was developed using Method 1 in the 2015 UWMP.

5.2.2 Updating Baseline and Target GPCDs

Situations may occur between baseline period and the compliance year that may warrant a change in the calculated Baseline GPCD or 2020 Target. Adjustments to the Baseline GPCD or 2020 Target are permitted based on changes in the distribution area:

- Distribution area expansion caused by mergers.
- Distribution area contraction.
- Distribution area expansion by annexation of already developed areas.

For the 2020 UWMP, the City of Milpitas is not updating its Baseline or Target GPCDs.

5.2.3 SB X7-7 Verification Form

All Retail Suppliers are required to submit the standardized tables in the SB X7-7 Verification Form with their 2020 UWMPs. These standardized tables are required in 2020 to demonstrate compliance with the Water Conservation Act of 2009.

The City's 2020 daily per capita water use was 108 GPCD, which is less than the both the City's 2015 interim target and 2020 target. Although the 2020 water use reflects the 2014-2017 drought conditions, the City has met the 2020 target due to ongoing implementation of existing water conservation and "Demand Management Measures" (refer to Chapter 9), as well as increasing recycled water usage. The City's per capita water use prior to the drought in 2013 is considered the upper limit to which water use may rebound following the drought; the 2013 per capita usage of 142 GPCD is less than the 2020 target of 146 GPCD.

The City's compliance with SB X7-7 for the established water use target for the year 2020 is verified by DWR's review of the SB X7-7 Verification Form, which is summarized in Table 5-1 and Table 5-2 of this section.

5.3 General Requirements for Baseline and Targets

The 2020 UWMP requirements are the same as the 2015 UWMP requirements for determining the baseline period, Baseline GPCD, Target confirmation, and 2020 Target. They are as follows:

- **Baseline Period:** Per *Water Code Section 10608.20*, water use GPCD must be calculated and reported for two baseline periods, the 10- or 15-year baseline (Baseline GPCD) and the 5-year baseline (Target Confirmation).
    - The defined Baseline Period for the City for the 10 -year baseline was 1995–2004. The City used the 10- year period because its recycled water use in 2008 was less than 10% of the total water use.

- Suppliers must use their same water use from the 5-year baseline period as reported in 2015 UWMPs. This water use amount will be used to confirm that the selected 2020 target meets the minimum water use reduction requirements. The defined Baseline Period for the City for the 5-year period baseline was 2003–2007.

- **Baseline GPCD:** To correctly calculate annual GPCD, suppliers must determine the population that they served for each baseline year in both baseline periods. The City used Department of Finance data to determine the population served for each baseline period. For each baseline year, a GPCD is calculated by dividing gross water use by the service area population. Baseline GPCD or Target Confirmation GPCD is then an average of all GPCDs for each baseline year in the baseline period. The 10-year baseline GPCD for the City was 183.
- **Target Confirmation:** The 5-year baseline, also called the Target Confirmation, is a shorter-term baseline for confirming the 2020 Target. Suppliers must use their same water use from the 5-year baseline period as reported in 2015 UWMPs. This water use amount will be used to confirm that the selected 2020 target meets the minimum water use reduction requirements. The defined 5-year baseline period for the City was 2003–2007. The 5-year baseline GPCD for the City was 168.
- **2020 Target:** Every suppler must calculate a water use target for 2020 in GPCD (2020 target). The target method used in the 2015 UWMP may not be changed in any amendments to the 2015 Plan or in the 2020 UWMP. The City used Target Method 1 for determining the 2020 Target in its 2015 UWMP.

5.4 Service Area Population

In order to correctly calculate the compliance year GPCD, Retail Suppliers must determine the population that they served in 2020. DWR permits suppliers to use the best available information for their service area. DWR recommends the U.S. Census 2020 decennial data as the most defensive population data, however it was not available at the time of the 2020 UWMP preparation. DWR identifies California Department of Finance (DOF) data or American Community Survey 2018 or 2019 data (if available for the 2020 calculations), or other sources of population counts, that the Supplier considers the best available information for their service area.

The City used Department of Finance data for its population numbers in the 2015 UWMP. For the 2020 UWMP, the City has elected to use DOF data once again. Using this data, the City has determined that its 2020 service area population was 77,691. It should be noted that DOF data also was used in the City's 2015 and 2021 DSS Model updates and the 2020 BAWSCA Demand Study.

5.4.1 Department of Finance

The use of DOF data is most appropriate because the UWMP Guidance document provides several alternatives for determining service area population, including California DOF estimates for cities whose service area boundaries correspond by 95% or more with the city boundaries. Since the City's service area is substantially the same as the City of Milpitas boundaries, the population estimates from the DOF are appropriate for the City's use. Therefore, the City has used this data for determining the service area population for all SB X7-7 calculations.

5.4.2 U.S. Census Bureau American Community Survey

This method is used to determine population estimates for the non-census years, including 2020 until the 2020 U.S. Census data is released. The U.S. Census Bureau gathers data between the 10-year Census cycles through the American Community Survey (ACS), to provide more current statistical averages of an area by subsampling a portion of the area population. Depending on the size of the area, one-year or five-year averages are provided. The one-year average is only provided for areas with populations of 65,000 or more, and the five-year average provides estimates for all areas. When using ACS data, it is important to use the same year's (or years') averages for the entire study area. ACS geographic boundaries and Supplier boundaries should also correspond by 95

percent to the service area boundaries. For the 2020 UWMP, the City did not use the U.S. Census Bureau Survey because they opted to use the Department of Finance as noted in Section 5.4.1.

5.4.3 Persons-per-Connection

This method is used to determine population estimates for the non-census years, including 2020, until the 2020 U.S. Census data is released. Suppliers must already have population estimates for the census years in order to use this method. Number of service connections refer to the residential connections, except in the case where Suppliers have classified any residential (including multi-family residential) as any other category, such as commercial or mixed use. For the 2020 UWMP, the City did not Persons-per-Connection because they opted to use the Department of Finance as noted in Section 5.4.1.

5.4.4 DWR Population Tool

DWR anticipates release of the updated free-online DWR Population Tool in adequate time for 2020 UWMP preparation. Any Supplier may use the DWR Population Tool, but it is particularly useful for suppliers whose service area boundaries do not match to a city or Census Designated Place, and that cannot use DOF or ACS population data. The tool will use the U.S. Census data and electronic maps of the Supplier's service area (the tool will provide instructions for developing electronic maps) to obtain population data for census years. Using the number of supplier service connections, the tool will then calculate the population for the non-census years. For the 2020 UWMP, the City did not use the DWR Population Tool because they opted to use the Department of Finance as noted in Section 5.4.1.

5.4.5 Other Population Methods

Suppliers may estimate their population using other methods developed in-house, by a wholesaler, Association of Governments, consultant, university, or other entity. However, DWR must determine that the alternate method complies with the requirements of Methodology 9 of the *Methodologies* (DWR, 2016) document and is at least as accurate as the methods recommended by DWR. The Supplier must provide a description of the method that provides enough detail for DWR to make this evaluation. For the 2020 UWMP, the City did not use other methods because they opted to use the Department of Finance as noted in Section 5.4.1.

The City used the population data from DOF for the 10-year and 5-year baseline calculations. As per DWR requirements, Table 5-0a (SB X7-7 Table 2: Method for Population Estimates) and Table 5-0b (SB X7-7 Table 3: Service Area Population) have been completed and are included below.

Table 5-0a. Method for Population Estimates

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:	

Table 5-0b. Service Area Population

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	77,961
NOTES: City of Milpitas 2020 Population value (77,961) by California Department of Finance.	

5.5 Gross Water Use

Gross water use must be reported for each year in the baseline periods as well as for 2020, the compliance year. The City's gross water use is a measure of the total volume of water, based on metering data, that enters its distribution system over a 12-month period from its supplier, SFPUC, with certain allowable exclusions as follows:

- Recycled water delivered within the service area. Recycled water use has been excluded from all calculation of gross water, as reflected in the SB X7-7 tables. The City is not required to report recycled water use, nor demonstrate any reduction in recycled water use for purposes of SB X7-7.
- Indirect recycled water (see Methodology 1 from the *Methodologies* document, DWR 2016)
- Water placed into long-term storage (surface or groundwater)
- Water conveyed to another urban supplier
- Water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24
- Process water

In the 2020 UWMP, the City used Million Gallons (MG) as the units of measure based on meters purchased from SFPUC. The City's metering data includes all the water that enters its distribution system during a calendar year (month through month). The City uses recycled water, but groundwater use is only for emergencies with wells classified as standby under the state. The City does not use other sources of water, such as surface water or desalinized water, and does not have other exclusions for industrial water.

Gross water purchases from SFPUC were reported in SB X7-7 Tables in the City's 2015 UWMP for each year in the baseline periods as well as in the 2015 Interim Target compliance year and the 2020 Target. No changes have been made to the tables from 2015 for this 2020 UWMP. Suppliers who deduct indirect recycled water and/or process water from their gross water will complete additional tables, as found in the subsections below. Since the City does not use other sources of water (e.g., indirect recycled water or process water), this is not applicable and as such not included in the City's calculations.

5.6 Baselines and Target Summary

The City of Milpitas used Method 1, consistent with the state's 20% reduction mandate, to develop the 2020 water use Target and the 2015 Interim Water use target. Method 1 requires the City's 2020 conservation goal to be 80% of its 5-year baseline, which is 168 GPCD. The summary of the SB X7-7 calculations that were previously reported in the City's 2015 UWMP, where the City's 2020 target was calculated to be 146 GPCD, are unchanged for this 2020 UWMP. The reduction from the 5-year baseline of 168 GPCD down to a confirmed target of 146 GPCD was a 13% reduction. This GPCD reduction exceeds the 5% base daily per capita water use for the 5-year baseline, per water code 10608.22.

As per DWR recommendation, the SB X7-7 Verification Form is summarized in Table 5-1. The City's Average Baseline GPCD use (as shown in Table 5-1) is the total water used (in gallons) divided by the total service area population that has been averaged over 5 years or 10-15 years.

Table 5-1. Baselines and Targets Summary

Submittal Table 5-1 Baselines and Targets Summary From SB X7-7 Verification Form *Retail Supplier or Regional Alliance Only*				
Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	1995	2004	183	146
5 Year	2003	2007	168	
**All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD).*				
NOTES: Target is based on Method 1.				

5.7 2020 Compliance Daily Per Capita Water Use (GPCD)

Per *Water Code Section 10608.12(e),* "compliance daily per capita water use" means the gross water use during the final year of the reporting period. Per *Water Code Section 10608.20 (e),* "*An urban retail water supplier shall include in its urban water management plan…compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data*."

This section describes the City's compliance and adjustments to Gross Water Use.

5.7.1 Meeting the 2020 Target

As shown in Table 5-2, based on the City's actual metered water consumption for 2020, the GCPD use was 108. This is significantly lower than the City's 2020 Target of 146 GPCD, illustrating compliance with its 2020 Target. The City used SB X7-7 Method 1 to determine compliance with its 2020 Target. The actual 2020 GPCD for the City was 108, which equates to a 36% reduction from the 5-year baseline GPCD of 168.

The City exceeded its 2020 GPCD confirmed target by 26%. This is in part due to the City's ongoing implementation of permanent water conservation measures outlined in the City's prevention water waste Ordinance 240.6 (can be found in the City's WSCP, see Appendix I of this UWMP).

For the City service area, 2020 was an extremely unusual year due to the COVID-19 pandemic. Therefore, the City is continuing to track changes in its water use sectors to determine if these water use patterns are short-term (i.e., from the pandemic) or ongoing.

Table 5-2. 2020 Compliances

Submittal Table 5-2: 2020 Compliance From SB X7-7 2020 Compliance Form Retail Supplier or Regional Alliance Only				
2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*		
108	0	108	146	YES
NOTES: 2020 Population value (77,961) by California Department of Finance.				

5.7.2 2020 Adjustments to 2020 Gross Water Use

Per Water Code Section 10608.24 (d)(1), When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

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

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.

The City has not made any adjustments to its 2020 gross water use.

Extraordinary Events

If extraordinary events have affected institutional water use, Suppliers may choose to adjust their compliance GPCD. An example recognized by DWR of an extraordinary event is the shelter-in-place requirement in California, due to COVID-19 precautions beginning in March 2020, have affected urban water use (Cooley et al., 2020). The full effects of “shelter in place” and “work from home” on the City’s service area water use were discussed in Chapter 2. In all cases of extraordinary events, it is important to adequately document the rationale and calculations leading to any adjustments.

The City has not made any adjustments for extraordinary events.

5.8 Regional Alliance

Suppliers that are choosing to comply with SB X7-7 requirements through a Regional Alliance must report the information from this chapter in the Regional Alliance Report. The report has to include the SB X7-7 Verification Form for a Regional Alliance, Option 1, 2, or 3.

The City of Milpitas is complying with SB X7-7 as an individual retail agency, not as part of a regional alliance.

6 WATER SUPPLY CHARACTERIZATION

Lay Description

This section characterizes the City of Milpitas's system supplies, including purchased or imported water, groundwater, surface water, stormwater, wastewater, recycled water, desalinated water, exchanges or transfers, future water projects, and any climate change impacts.

The water supply analysis focuses on characterizing each water asset in order to provide the information needed for reliability and risk assessments. The more accurately and detailed this characterization is, the better prepared the City will be for managing its water assets, assessing supply reliability, performing its DRA, and preparing and implementing its WSCP.

The source of the City's water supply comes from two suppliers. Water from SFPUC is primarily from the Hetch Hetchy watershed located in the Sierra Nevada mountains. Water from Valley Water is primarily from the Sacramento-San Joaquin Delta watershed via the South Bay Aqueduct, Dyer Reservoir, Lake Del Valle and San Luis reservoir.

6.1 Water Supply Analysis Overview

This section will identify and quantify, to the extent practicable, the existing and planned sources of water available to the City in five-year increments to 20 years.

6.1.1 Specific Analysis Applicable to All Water Supply Sources

System Supplies

The City currently has two sources of water from SFPUC and Valley Water which are both wholesale water agencies. Each system will be described separately below.

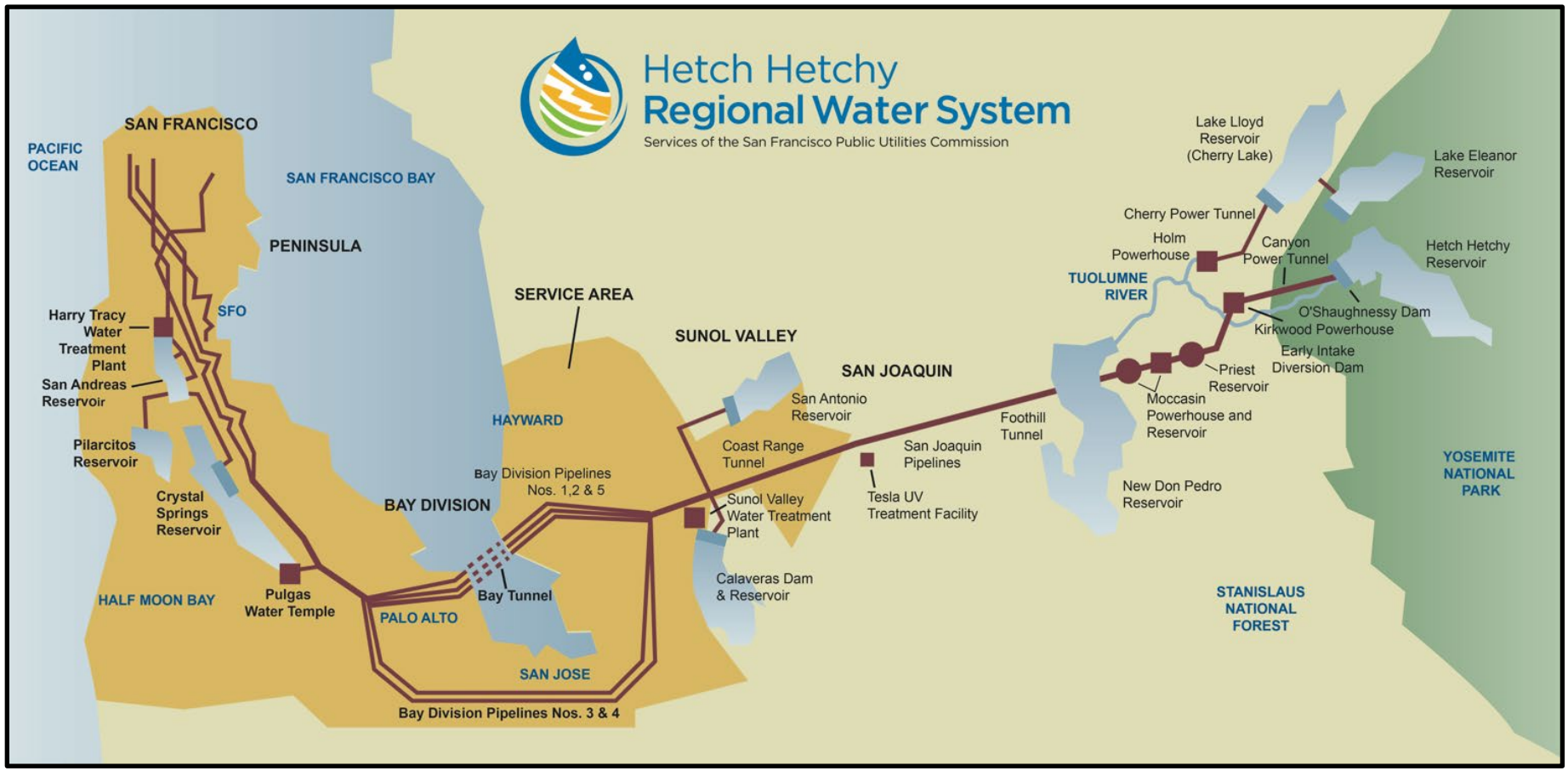
San Francisco Public Utilities Commission (SFPUC)

The City purchases potable water from the SFPUC Regional Water System (RWS). The SFPUC RWS supply is predominantly snowmelt rom the Sierra Nevada, delivered through the Hetch Hetchy aqueducts (see Figure 6-1), but it also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties (see Figure 6-1). Water from the RWS is treated before delivery and supplied to City from two connections, Bay Division Pipelines (BDPL) 1 and 2, and the Crystal Springs Bypass Tunnel.

On June 2, 2009, the City entered into a 25-year Water Supply Agreement with SFPUC. This agreement affirms the City's perpetual right to purchase up to 9.23 mgd of treated potable water unless SFPUC has a water shortage.

The amount of imported water available to the SFPUC's customers is constrained by climate, hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River, the key source for SFPUC. Due to these constraints, the SFPUC is very dependent on reservoir and snow-pack storage to manage its water supplies.

Figure 6-1. City of Milpitas Water Sources – SFPUC Regional Water System Map



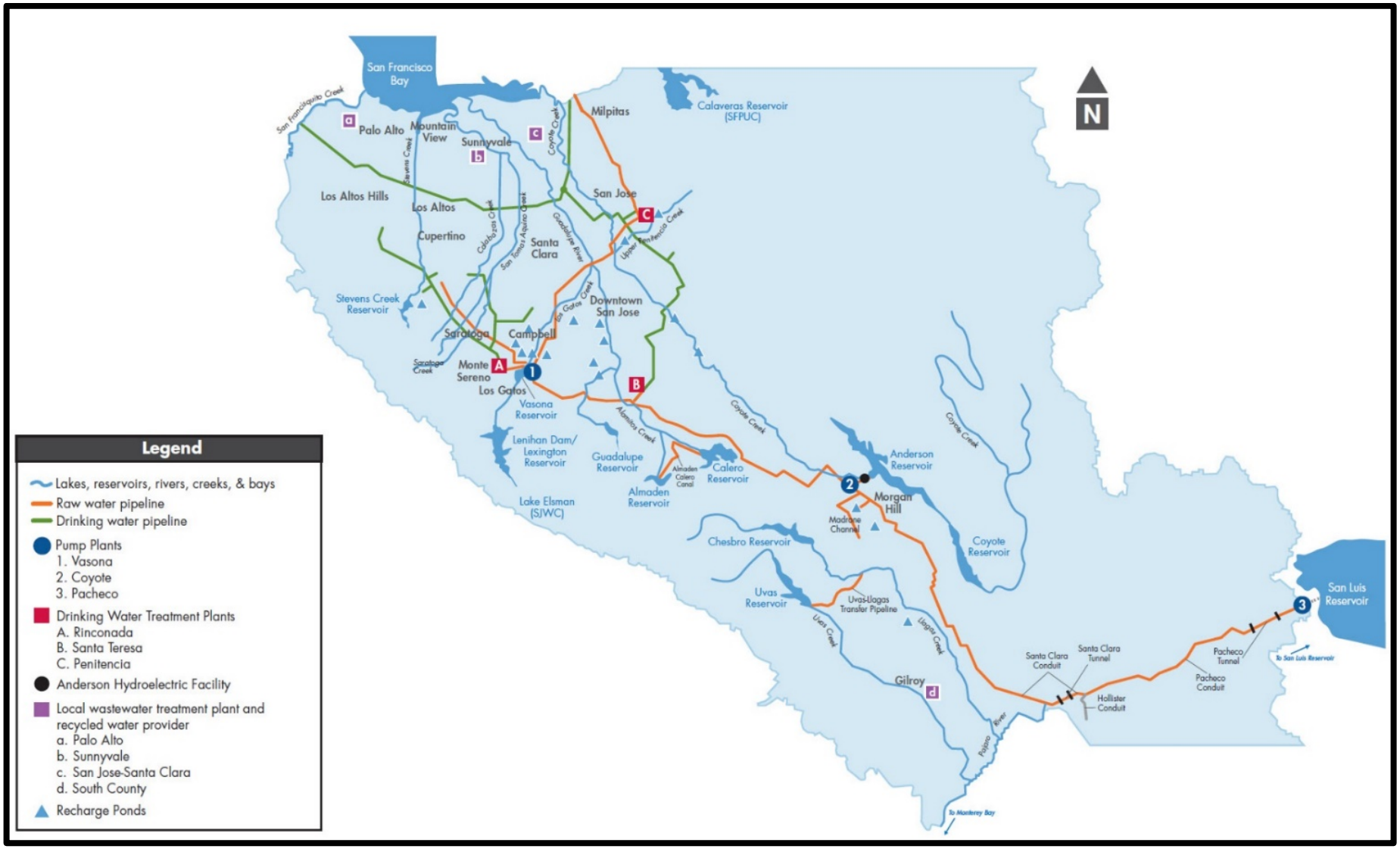
Source: SFPUC, 2020.

Valley Water (Formerly Santa Clara Valley Water District)

The City began receiving treated surface water from Valley Water in August 1993 under a September 1984 contract between the City and Valley Water (previously known as Santa Clara Valley Water District). The supply delivery is adjusted annually based on a binding 3-year annual delivery schedule. The City's annual purchase must be at least 90% of the delivery schedule and the City's monthly "supply guarantee" is at least 15% of the annual delivery schedule. Valley Water provides treated water from its Penitencia and Santa Teresa treatment plant via its Milpitas Pipeline which terminates in the City.

Although the City purchases are currently limited to surface water largely purchased by Valley Water from the State Water Project and Central Valley Project, Valley Water's overall water supply comes from a variety of sources. Nearly half is from local groundwater aquifers, and more than half is imported from the Sierra Nevada through pumping stations in the Sacramento-San Joaquin River Delta. Both groundwater and imported water are sold to retailers. Valley Water also manages the groundwater basin to the benefit of agricultural users and other independent users who pump groundwater. Local runoff is captured in Valley Water reservoirs for recharge into the groundwater basin or treatment at one of Valley Water's water treatment plants. The total storage capacity of these reservoirs is about 170,000 acre-feet (AF).

Figure 6-2. City of Milpitas Water Sources – Valley Water Supply System Map



Source: Valley Water Draft UWMP, March 29, 2021.

6.1.2 Other Characterization Considerations

There are no additional characterization considerations; all have been mentioned in Chapters 4, 6 and 7.

6.1.3 Optional Planning Tool

The optional PN Planning Tool Supply Worksheet allows for detailed characterization for potable separate from non-potable supplies. Both optional PN Planning Tool worksheets also allow for inclusion of the supplier's available supplies over the 25-year planning horizon for normal, single dry, and five consecutive dry year periods.

The City of Milpitas has opted to not use the Optional Planning Tool for the 2020 UWMP.

6.2 Narrative Sections for UWMP Water Supply Characterization

The City of Milpitas's water supply portfolio is described and quantified in the following subsections, including imported supplies and recycled water.

6.2.1 Purchased or Imported Water

The City purchases treated potable water from two wholesalers: SFPUC and Valley Water (previously known as SCVWD). These two sources are not blended under normal operating conditions. However, the distribution systems are physically interconnected with isolation valves to provide emergency water supply if needed. The 2020 breakdown of actual water supplies is in Table 6-8. Projected (future) water supplies include the aforementioned sources and are provided in Table 6-9.

In its incorporation year of 1954, the City began distributing SFPUC water to all residents and businesses, expanding to the hillside area in 1982. In August 1993, the City began serving water from SCVWD (now Valley Water), primarily to the commercial and industrial areas of the City (west of Highway 880, and also south of Calaveras Blvd. and west of Highway 680). Figure 3-1, in Chapter 3, shows the SFPUC and Valley Water service areas.

Most of the City's growth is occurring within areas served by Valley Water and as these areas grow so does the percentage of the City's potable supply that comes from Valley Water. In 2020, approximately 30% of the City's potable water came from Valley Water, which is a decrease from 40% in 2015.

Valley Water Standard Text

Major sources of supply for Valley Water include natural groundwater recharge, local surface water, imported water from the SWP and CVP, and recycled and purified water.

Imported

Much of Valley Water's current water supply comes from hundreds of miles away from natural runoff and releases from statewide reservoirs. This imported water is pumped out of the Delta and brought into the county through the complex infrastructure of the SWP and CVP. Valley Water holds contracts for 100,000 AFY from the SWP and for 152,500 AFY from the CVP. The actual amount of water delivered is typically less than these contractual amounts and depends on hydrology, conveyance limitations, and environmental regulations.

Constraints on imported water:

Imported water supplies are subject to hydrologic variability. Local and out-of-county storage can help mitigate the impacts of hydrologic variability.

Valley Water's SWP and CVP water supplies are also subject to a number of additional constraints including regulatory requirements to protect fisheries and water quality in the Delta, and conveyance limitations. Delta-conveyed supplies are also at risk from Delta levee failures due to seismic threats and flooding, sea level rise and climate change, declining populations of protected fish species, and water quality variations (including algal blooms). Many water quality variations are addressed, by blending sources and/or switching sources to the drinking water treatment plants. Algae and disinfection byproduct precursors have been especially challenging during recent drought conditions. To address at least some of these constraints, Valley Water continues to evaluate the costs and benefits of participating in the Delta Conveyance Project relative to other water supply options such as developing additional local supplies, securing and optimizing Valley Water's existing water system, and expanding water conservation.

6.2.2 Groundwater

Agencies that pump, or expect to pump, groundwater are required to include in their UWMPs an overview of the groundwater resources and groundwater management strategies. Currently, the City does not use groundwater to meet customer demands under normal conditions. The City has one existing fully developed well, Pinewood Well and two planned or in development: Curtis Well and McCandless Well. These wells are located in the southwestern part of the City (See Figure 6-3). The Curtis Well was drilled in 2003, but the well was not equipped with above-grade infrastructure required for a functioning well, and the facility was never completed. As a result, bringing the Curtis Well online requires installing a submersible pump, piping and treatment components, as well as conducting testing and permitting. Design for the Curtis Well improvements began in 2020. Construction of the McCandless Well began in 2020 and is anticipated to be completed by 2024.

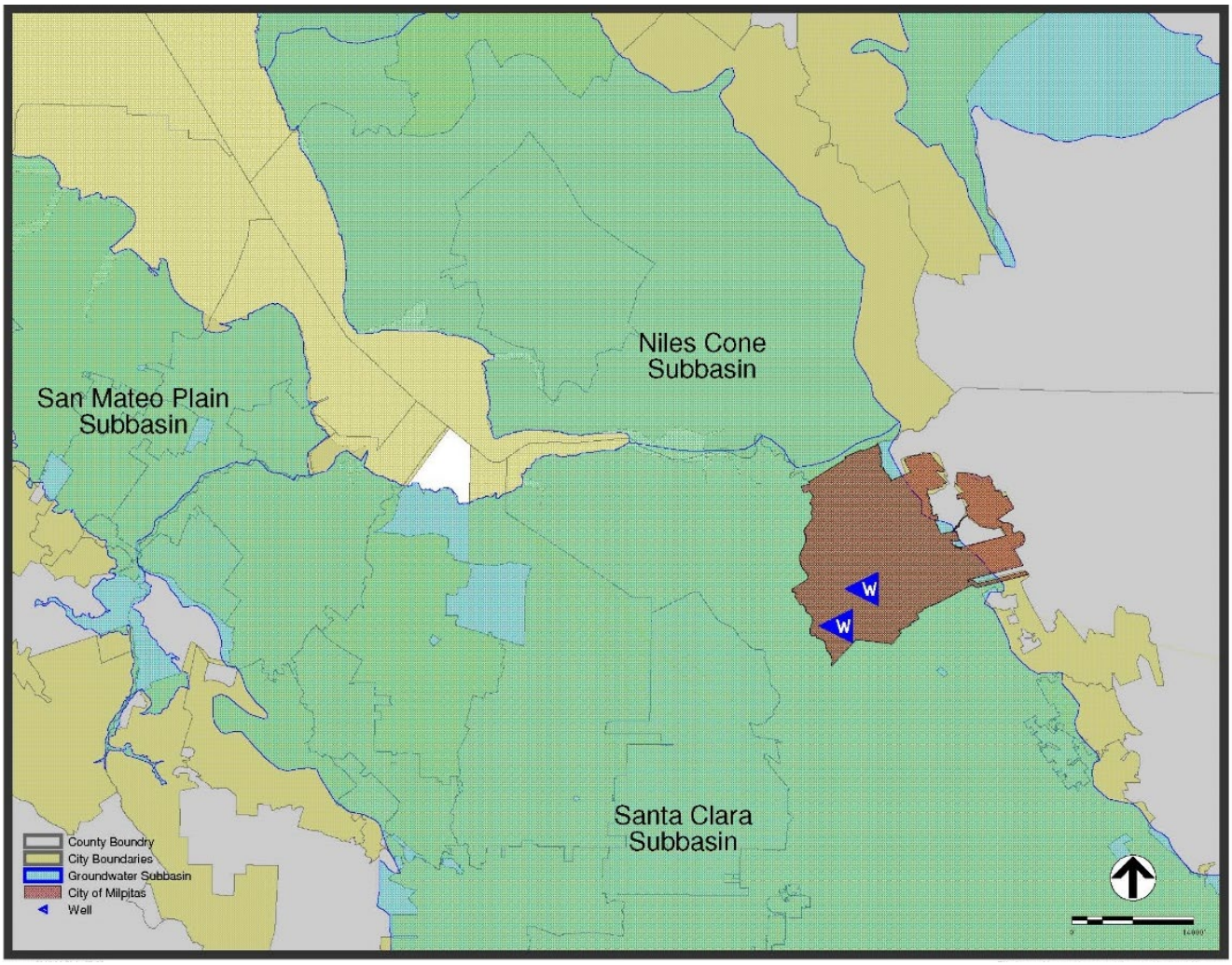
The use of Pinewood Well, Curtis Well and McCandless Well as emergency wells or fully functioning wells is yet to be studied, however the significance of these wells cannot be understated. In 2015, the State Water Resources Control Board Division of Drinking Water requested a formal evaluation of the City's Water Source Capacity, under Section 64558, Title 22, of the California Code of Regulations. The use of well(s) for storage credits is one strategy the City may use to supplement above grade storage requirements to satisfy Section 64558, Title 22. A Source Capacity Analysis, as part of a separate study independent of the UWMP, is being performed by the City at the time of the writing of this UWMP. In May of 2020, the City completed a Draft Final Water Master Plan which identified the City's current and future water demands and the infrastructure required to address source capacity. The Master Plan Study will inform the Source Capacity Analysis. However, preliminary evaluations

indicate a combination of groundwater supply in conjunction with above grade storage (tanks) may be the appropriate balance to ensure compliance with Section 64558 of Title 22. Additionally, expanding the City's water portfolio to include groundwater wells will supplement loss of supply as a result of wholesale cutbacks in the event of prolonged droughts as discussed in Chapter 7. Pinewood Well is permitted for use as a standby emergency well. The City currently reserves groundwater supply for emergency use in the event that SFPUC and Valley Water cannot deliver contract treated water supplies.

Basin Description

The local groundwater basin is called the Santa Clara Valley Sub-basin. The basin is made up on unconsolidated alluvium. Within City boundaries, the eastern portion of the basin is unconfined and does not contain an aquitard to prevent contamination from spreading from surface to groundwater. The western portion of the City overlies a confined, aquitard-protected area with water of good quality.

Figure 6-3. City of Milpitas Groundwater Resources



Source: City of Milpitas Draft 2020 Water Master Plan. West Yost. (2021)

Other Considerations

The Santa Clara Valley Sub-basin is not adjudicated and has not been identified to be in overdraft by DWR. Neighboring utilities, including the City of Santa Clara and the City of San Jose, utilize the groundwater basin. The basin has historically experienced periods of overdraft and land surface subsidence, particularly during the

1920s and 1960s when expanding development and agricultural production increased demand. The Santa Clara Valley Water Conservation District (today's Valley Water) was originally formed in 1929 to alleviate subsidence through artificial recharge. Valley Water manages the groundwater basin, monitoring the basin for local subsidence, managing surface recharge, and working with local retailers to prevent subsidence. For more information on basin characteristics and management, please refer to Valley Water's Groundwater Management Plan (Santa Clara Valley Water District, 2016). Additionally, The City may expand its managed groundwater well extraction program to supplement loss of supply as a result of wholesale cutbacks in the event of prolonged droughts as discussed in Chapter 7.

Table 9-2 of the Draft 2020 Water Master Plan (as shown in Figure 6-4) summarizes the location and capacity for each of these wells.

Figure 6-4. Location and Capacity of Emergency Groundwater Wells at Buildout

Table 9-2. Emergency Groundwater Wells at Buildout

Well Facility	Location	Pressure Zone Served	Capacity	
			gpm	mgd
Pinewood Well[a,d]	227 Lonetree Court	SF1	1,181	1.70
Curtis Well[b,d]	330 East Curtis Avenue	VW2[e]	400	0.58
McCandless Well[c,d]	Near 1680 McCandless Drive	VW1	400	0.58

(a) Pinewood Well capacity per 2009 WMPU, Table 4-3.
(b) Curtis Well capacity is assumed to be equal to McCandless Well but is subject to change pending additional testing.
(c) McCandless Well capacity per discussions with design team in September 2020.
(d) Pinewood Well has a plug-in adapter and transfer switch to receive power from a portable generator. It is assumed Curtis Well and McCandless Well will also have these backup power features.
(e) While Curtis Well is located within Zone SF1, it is adjacent to transmission mains for Zones SF1, SF2, and VW2. Given the projected large increase in demands in the VW service area, it is assumed Curtis Well would serve Zone VW2.

Source: West Yost. (2021). City of Milpitas Draft 2020 Water Master Plan.

Past Five Years

Table 6-1 shows the historical annual volume of groundwater pumped over the past five years. This groundwater was pumped only for the purpose of routine water quality testing. It was not added to the municipal water supply.

Table 6-1. Groundwater Volume Pumped

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	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 ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Alluvial Basin	Santa Clara Valley, Santa Clara Sub-basin	0.48	0.09	0.1	0.03	0.06
	TOTAL	0.48	0.09	0.10	0.03	0.06
NOTES: Groundwater pumped during reporting period was for testing purposes only. No groundwater was pumped into the distribution system.						

Table 6-9 shows the projected annual volume of groundwater pumped, in five-year intervals. The projection is based on well capacity values reported in the Draft 2020 Water Master Plan and reflects a tiered introduction of groundwater into the municipal supply. Capacity for McCandless Well (currently under construction) is based on discussions with the design team and production testing, which was performed at the end of 2020. It was conservatively assumed that Curtis Well would have the same capacity as McCandless Well (0.58 mgd). However, the Curtis Well capacity is subject to change.

6.2.3 Surface Water

Water from streams, lakes, and reservoirs is considered a surface water supply for the purposes of the UWMP. Surface water supplies for the City are reported in Tables 6-8, 6-9, and 7-1. Surface water that is not self-supplied will be reported as Purchased or Imported Water in Tables 6-8 and 6-9.

6.2.4 Stormwater

Communities are increasingly implementing opportunities to beneficially use stormwater to meet local water supply demands. These actions are motivated by constrained local water resources, new regulations, and relieving strain on overburdened stormwater infrastructure. Beneficial uses can include blending with other waters supplies for groundwater recharge, redirecting it into constructed wetlands or landscaping, and diverting it to a treatment facility for subsequent reuse.

The City is not currently using its stormwater but could consider this in the future.

6.2.5 Wastewater and Recycled Water

Per Water Code 10633, the UWMP 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, and shall include all of the following:

- A description of wastewater collection and treatment systems in the supplier's service area.
- A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycle water project.
- 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.
- 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.
- 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.
- A description of actions, including financial incentives, that may be taken to encourage use of recycled water, and projected results of these actions in terms of acre-feet of recycled water used per year.

Municipal recycled water is municipal wastewater that has been treated to a specified quality to enable it to be used again for a beneficial purpose. The term "recycled water" is defined in the Water Code more broadly than "municipal recycled water." For purposes of the UWMPs, "recycled water" means only municipal recycled water, that is, water that has been treated and discharged from a municipal wastewater facility.

There are two requirements that treated municipal wastewater must meet to be classified as recycled water:

1. It must be reused beneficially, in a manner consistent with Title 22.
2. It must be reused in accordance with a Regional Water Quality Control Board permit such as National Pollutant Discharge Elimination System, waste discharge requirement, or water recycling requirement.

Recycled Water Coordination

As a tributary agency to the San Jose/Santa Clara Water Pollution Control Plant (WPCP), the City of Milpitas has rights to the recycled water purveyed by SBWR. The City purchases recycled water from SBWR, as well as operates and maintains the recycled water distribution facilities within City boundaries. This is done through a contract with the City of San Jose, whereby Milpitas provides day-to-day operational services and helps to comply with recycled water permit requirements within the City. Design and construction criteria pertaining to recycled water are included in SBWR's guidelines[1] and *Rules and Regulations.*[2]

Wastewater Collection, Treatment, and Disposal

Per Water Code Section 10633(a), a suppler must provide a general description of wastewater collection, treatment, and disposal within the service area. This information is reported in Tables 6-2 and 6-3.

Wastewater Collected Within the Service Area

The City collects, but does not treat, wastewater within the service area. Rather, it pumps its wastewater, consisting primarily of industrial and sanitary discharge, through two force mains to the WPCP, also known as the San Jose/Santa Clara Regional Wastewater Facility (RWF). Table 6-2 includes the volume of wastewater collected in the service area.

Wastewater Treatment and Discharge Within the Service Area

Wastewater treatment is provided by agreement with the cities of San Jose and Santa Clara (as joint owners of WPCP). Under terms of the agreement, the City pays a capital share (in proportion to the City's 14.25 mgd capacity rights and the total plant capacity) and pays an operating cost share based on discharge volumes to WPCP. WPCP is one of the largest advanced wastewater treatment facilities in California, treating an average of 110 million gallons of wastewater per day from over 1.4 million residents and 17,000 main business connections, encompassing the cities of San Jose, Santa Clara, Milpitas, Campbell, Cupertino, Los Gatos, Saratoga, and Monte Sereno. Most of the final treated water is discharged into the South San Francisco Bay. Approximately 20% is supplied to South Bay Water Recycling for distribution to customers. Because the WPCP is outside of the City's service area, no volume numbers are included in Table 6-3, which is meant to identify the volume of treated wastewater recycled or disposed of within the service area.

Recycled Water System Description

Recycled water is predominantly used for landscape irrigation within the City but is also used for industrial use. As indicated in Table 6-4, landscape irrigation and industrial uses of recycled water are projected to continue growing within the City, and golf course irrigation is anticipated to be added as a new recycled water use type within the City's service area.

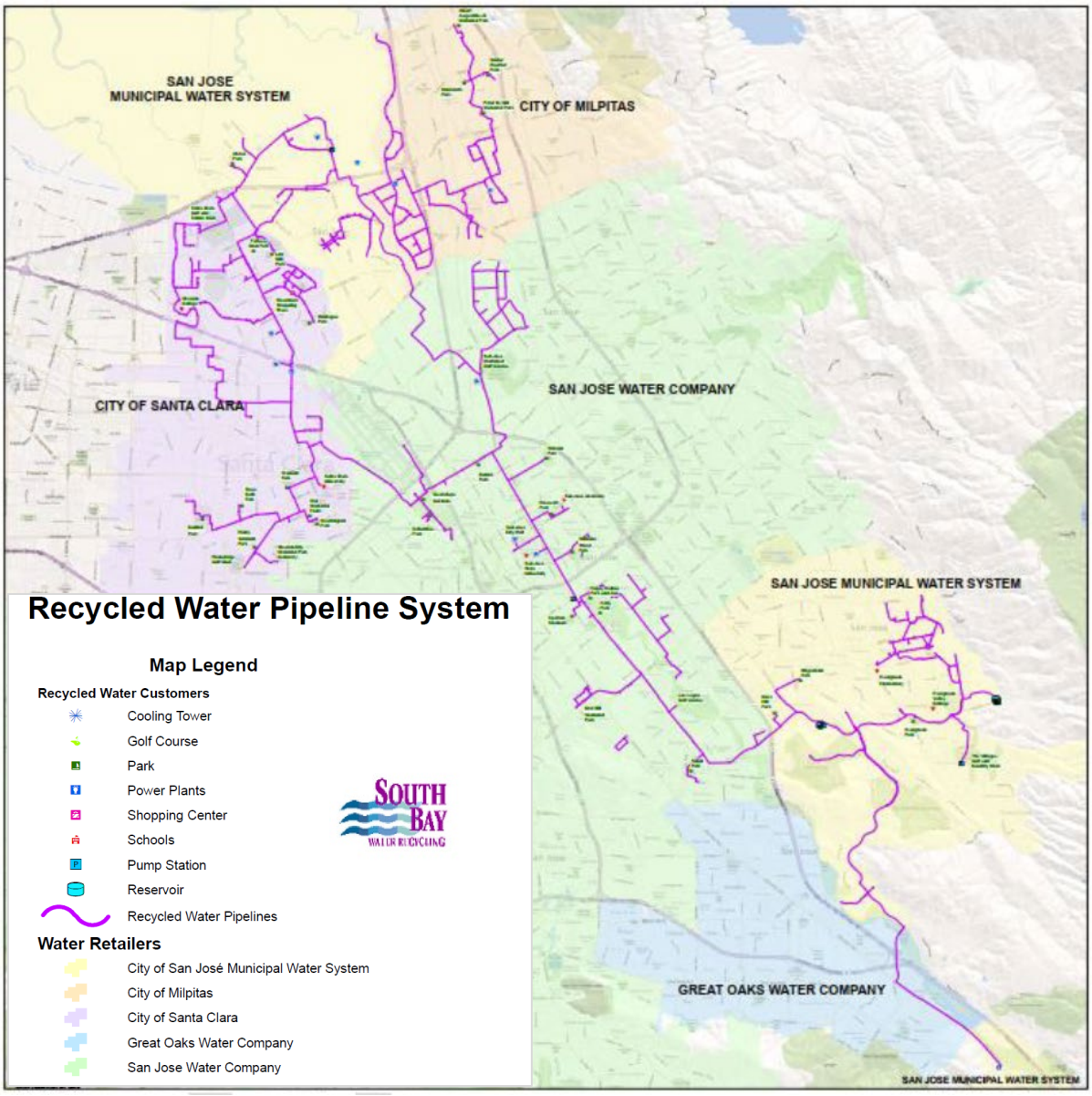
The City of San Jose in coordination with Valley Water completed the SBWR Strategic and Master Plan in 2015, which describes and quantifies potential uses of recycled water throughout the SBWR service area and addresses

[1] City of San Jose. Recycled Water web page, accessed June 2021: https://www.sanjoseca.gov/your-government/environment/water-utilities/recycled-water

[2] South Bay Water Recycling. *Rules and Regulations For Design and Operation of On-Site Recycled Water Facilities*. https://www.sanjoseca.gov/home/showpublisheddocument?id=526

technical and economic feasibility of the potential uses, including non-potable and potable alternatives. Figure 6-5 depicts the City's recycled water distribution system.

Figure 6-5. Recycled Water System



Source: City of San Jose Recycled Water web page.[3]

[3] City of San Jose. Recycled Water web page, accessed June 2021: https://www.sanjoseca.gov/your-government/environment/water-utilities/recycled-water

Table 6-2. Wastewater Collected Within Service Area in 2020

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
99%	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
99%	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)*
City of Milpitas	Metered	2,032	City of San Jose	San Jose/ Santa Clara Water Pollution Control Plant	No	Yes
Total Wastewater Collected from Service Area in 2020:		2,032				
NOTES: All wastewater is included in the 99% except for the 25 Spring Valley Heights Association units.						

Table 6-3. Wastewater Treatment and Discharge Within Service Area in 2020

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
☑	No wastewater is treated or disposed of within the UWMP service area. The Supplier will not complete the table below.										
							2020 volumes				
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	Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
						Total	0	0	0	0	

Potential, Current and Projected Recycled Water Use

The recycled water projections in Table 6-4 include projects currently underway to convert potable users within the vicinity of the existing recycled water system, irrigation and indoor recycled water anticipated within Specific Plan areas, conversion of cooling towers as identified through a SBWR Cooling Tower Initiative and extension of the recycled water system to capture additional irrigation use. Every year, the City of Milpitas purchases approximately 300 million gallons of recycled water from the San Jose/Santa Clara Regional Wastewater Facility, through the wholesale agency, South Bay Water Recycling (SBWR). The recycled water undergoes an extensive tertiary treatment process (including filtration and disinfection) and is delivered to more than 220 recycled water customers in Milpitas, for landscape irrigation and industrial uses.

The recycled water system is part of the South Bay Water Recycling Strategic Master Planning Report completed in 2014. The Strategic Plan was divided into two phases, near term (2015-2020) and long term (2020-2035). Master Planning will provide basis for identifying alternative governance frameworks and associated funding strategies for non-potable water (i.e. recycled water). The SBWR system is currently developed to reflect near term recycled water demands. The long term plan is currently being studied, and future allocations have not been identified. Projected recycled water use is limited by the future supply allocations outlined by SBWR, and therefore not reflected in this UWMP.

Table 6-4 contains information on the current, projected, and potential beneficial use of recycled water in the City's service area. The total projected recycled water use for each of the five-year planning increments reported in Table 6-4 is also included in Table 4-5 in Chapter 4.

Table 6-4. Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Submittal Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area											
☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.										
Name of Supplier Producing (Treating) the Recycled Water:			City of San Jose								
Name of Supplier Operating the Recycled Water Distribution System:			South Bay Water Recycling								
Supplemental Water Added in 2020			0								
Source of 2020 Supplemental Water			N/A								
Beneficial Use Type	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity)	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045 (opt)
Landscape irrigation		36 MG	Landscape irrigation for commercial and institutional sites, parks	Tertiary	341	380	380	380	380	380
Industrial use	1 industrial cooling tower	1 MG	Industrial cooling tower	Tertiary	16	20	20	20	20	20
Total:					357	400	400	400	400	400
**IPR – Indirect Potable Reuse*										
NOTES: 2020 is actual water use. 2025-2045 values have been rounded to the nearest 10 MG.										

Table 6-5. 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual	
☐	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.

Beneficial Use Type	2015 Projection for 2020	2020 Actual Use
Landscape irrigation (exc. golf courses)	368	341
Industrial use	6	16
Total	374	357

Actions to Encourage and Optimize Future Recycled Water Use

Per Water Code Section 10633, the UWMP shall provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier, and shall include a plan for optimizing the use of recycled water in the supplier 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.

To encourage the use of recycled water, the City has an ordinance that prohibits the use of potable water for irrigation if recycled water is available and coordinates with SBWR and Valley Water on recycled water planning and implementation projects. The City has explored the possibility of connecting the recycled water infrastructure in its service area with that of the neighboring San Jose Water Company (SJWC), who is another SBWR retailer; a connection between the two retailer's systems would improve overall reliability.

Table 6-6 details the methods planned to expand future recycled water use in the City's service area.

Table 6-6. Methods to Expand Future Recycled Water Use

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
P. 61	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
Specific Plan	City has the MMSP Specific Plan policy that requires new development to include recycled water lines for irrigation	Existing	Once SBWR allocation is met
Ordinance	Ordinance 240.6, § 2 prohibits the use of potable water for irrigation if recycled water is available	2017	Once SBWR allocation is met
SBWR Coordination	Pending update to the SBWR Recycled Water Master Plan	Unknown	Unknown
		Total	0

6.2.6 Desalinated Water Opportunities

Desalination is the most costly of all treated waters available for the City, and as such the City does not plan to implement a desalination project at this time. However, desalination is still considered a viable option for a long-term augmentation method or back-up supply, especially with collaboration amongst neighboring agencies. The City's Water Supply Augmentation Study recommended that the City consider a partnership with a regional water purveyor for a local desalination plant.

The City is aware of the Bay Area Regional Desalination Project, of which Valley Water is a partner. More information on the regional desalination project is available at http://www.regionaldesal.com/. Currently, Valley Water is not including desalination in its projected water supplies.

6.2.7 Water Exchanges and Transfers

Per Water Code section 10631(c), this section describes the opportunities for exchanges or transfers of water on a short-term or long-term basis. The information contained in this section will inform the quantification of water supplies incorporated into Tables 6-8 and 6-9.

Exchanges

Water exchanges are typically water delivered by one water user to another water user, with the receiving water user providing water in return at a specified time or when the conditions of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or it can include payment and the return of water.

Since the early 1990s, the water exchange market (including water rights trading) has expanded to account for approximately 5% of all water used annually by California businesses and residents. However, the approval process for water exchanges have become more complex and difficult as water contracts shift from short-term to several-year durations, new pumping legislation is introduced as a result of controversies arising from water banking, unprecedented droughts, and other issues. It is a result of these complications that the City does not have, or plan to have, any exchange opportunities for the purpose of reducing costs or improving water quality.

Transfers

The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights.

The City of Milpitas is not currently doing water transfers.

Emergency Interties

Emergency water interties are connections between water systems that allow for the exchange or delivery of water between those systems on a short-term emergency basis. Emergency interties are addressed in Section 7 Water Service Reliability and Drought Risk Assessment.

The City has interties with neighboring San Jose Water Company (SJWC) and Alameda County Water District (ACWD) for emergency water supply. If a short-term or emergency supply were needed, the ACWD interties, both of which are 8-inches in diameter, could each suffice to supply the City with approximately 2.3 million gallons per day. This equates to 4.6 million gallons per day, which is nearly half of Milpitas's pre-drought average day demand. If more interties were constructed and connected, it would be possible to purchase an even higher volumetric flow rate from ACWD.

6.2.8 Future Water Projects

Per Water Code section 10631(f) this section describes all water supply projects and water supply programs that may be undertaken to meet the total projected water use. The City is able to meet future projected water needs from wholesale water purchases. However, as discussed earlier in Section 6.2, the City completed a Water Supply Augmentation Study in 2015 which recommended development of groundwater. Table 6-7 summarizes the expected increase in water supply as a result of these projects.

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

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
P. 65	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 *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Groundwater	No		Three emergency groundwater wells - Curtis, McCandless and Pinewood.	2021-2025	All Year Types	54
Groundwater	No		Three groundwater wells pumping at 1.2 mgd as supply augmentation to reduce dry year shortfall. The 2021-2025 Curtis, McCandless and Pinewood wells will be converted.	2030	Single-Dry and Multi-Dry Year	1,314
Groundwater	No		One or more groundwater wells pumping at 1.2 mgd as supply augmentation to reduce shortfall.	2035	Single-Dry and Multi-Dry Year	438
NOTES: Groundwater wells in this table are for emergency use only and permitted to be operated no more than 5 consecutive days and no more than 15 calendar days per year. They are not designed as general supply wells.						

6.2.9 Summary of Existing and Planned Sources of Water

Per Water Code Section 10631 this section will identify and quantify the existing and planned sources of water available over 5-year increments and provide supporting and related information.

Description of Supplies

The City's existing water supplies include imported water, groundwater, recycled water, and interties with neighboring agencies. Under normal conditions, imported water comprises the City's entire water supply. The City purchases treated surface water from two agencies: the SFPUC and Valley Water, which was previously known as the Santa Clara Valley Water District. In 2019, water supplies from SFPUC totaled 6,146 acre-feet (AF) and represented about 59 percent of the City's total water supplies, while water supplies from Valley Water totaled 3,182 AF and represented about 31 percent of the City's total water supplies. Recycled water is produced at the San José-Santa Clara Regional Wastewater Facility and delivered to the City by SBWR. In 2019, the City used approximately 1,049 of recycled water, mainly for landscape irrigation. This represented about 10 percent of the City's total 2019 water use. In emergencies, the City can activate interties with SJW and the ACWD and/or pump groundwater. The City overlies the Santa Clara Valley Groundwater Sub-basin and currently has one groundwater well (Pinewood Well) permitted for emergency use.

Demand projections are shown in Table 6-9.

Quantification of Supplies

Table 6-8 lists the actual volume of purchased or imported water for the City's service area. Each supply source is listed and quantified separately, to the extent practicable. The City purchases its potable water supplies from the San Francisco Public Utilities Commission (SFPUC), and Valley Water. Under normal conditions, SFPUC and Valley Water supplies remain separate. Isolation valves prevent mixing and create two distinct water service areas. Recycled water is produced at the San José-Santa Clara Regional Wastewater Facility and delivered to the City by South Bay Water Recycling (SBWR).

Table 6-8. Water Supplies – Actual

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply		2020		
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Purchased or Imported Water	San Francisco Public Utilities Commission	2,159	Drinking Water	
Purchased or Imported Water	Valley Water	914	Drinking Water	
Recycled Water	South Bay Water Recycling	357	Recycled Water	
	Total	3,430		0

Table 6-9 lists the projected volume of water supplies, including volume by source, for the City's service area.

Table 6-9. Water Supplies – Projected

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply		Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	**2025**		**2030**		**2035**		**2040**		**2045** (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Purchased or Imported Water	San Francisco Public Utilities Commission	2,410		2,470		2,570		2,660		2,750	
Purchased or Imported Water	Valley Water	1,445		1,505		1,536		1,586		1,637	
Recycled Water	South Bay Water Recycling	400		400		400		400		400	
Other	Active Conservation	70		100		120		130		130	
	Total	4,325	0	4,475	0	4,626	0	4,776	0	4,917	0

6.2.10 Special Conditions

Numerous special conditions may affect each supplier's water supplies. This section documents the special conditions applicable to the City's service area.

Climate Change Effects

The issue of climate change has become an important factor in water resources planning in the state and is frequently considered for urban water management planning purposes, though the extent and precise effects of climate change remain uncertain. The climate change impacts were discussed in Section 4.5.

Regulatory Conditions and Project Development

Emerging regulatory conditions and planned future projects may also affect characterization of future water supply availability and analysis.

This does/does not apply to the City of Milpitas.

Other Locally Applicable Criteria

Other locally applicable criteria may also affect characterization and availability of an identified water supply.

This does/does not apply to the City of Milpitas.

6.2.11 Active Conservation

The City participates in Valley Water's conservation program and has assumptions of active conservation supply going into the future supply portfolio as shown in Table 6-9. Please see Chapter 9 for details of Valley Water's conservation program elements that are offered in the City.

6.3 Submittal Tables

Submittal tables are included in the appropriate subsections of this chapter rather than here.

6.4 Energy Intensity

Water energy intensity is the total amount of energy, calculated on a whole-system basis, required for the use of a given amount of water in a specific location (Wilkinson, 2000).[19] The City used the Total Utility Approach for reporting energy intensity. This approach reports a single energy intensity for all water management operations. The energy intensity is reported for the calendar year 2020 selected as the one-year reporting period, and utility bills for the associated reporting period are used as the source for energy consumption data. Total energy consumed by City during calendar year 2020 based on reported utility bills is 1,901,378.39 kilowatt hour (kWh), excluding 676,649.50 kWh from solar. Table O-1b shows the energy consumed for each million gallon (MG) of water entering the distribution system. Based on the Total Utility Approach, the City's energy intensity is estimated to be 554.4 (kilowatt hour per million gallons) kWh/MG.

The City also has calculated the energy associated with the collection and treatment of wastewater for the Calendar Year 2020 reporting period. Reported utility bills are used as the source for energy consumption data for the collection of wastewater. Energy use metered is used as the source for energy consumption data for wastewater treatment. Table O-2 shows the energy consumed for each MG of water entering the collection system. The City is not involved in the treatment or discharge wastewater. The City's energy intensity for the collection of wastewater is estimated to be 200.6 (kilowatt hour per million gallons) kWh/MG.

[19] Wilkinson. (2020). *Methodology for Analysis of the Energy Intensity of California's Water Systems,* supported by Ernest Orlando Lawrence Berkeley Laboratory and the California Institute for Energy Efficiency, accessed June 2021: http://large.stanford.edu/courses/2012/ph240/spearrin1/docs/wilkinson.pdf

Table O-1b. Recommended Energy Intensity – Total Utility Approach

Urban Water Supplier:	*City of Milpitas*

Water Delivery Product (If delivering more than one type of product use Table O-1C)

Retail Potable Deliveries

Table O-1B: Recommended Energy Reporting - Total Utility Approach

Enter Start Date for Reporting Period	1/1/2020	**Urban Water Supplier Operational Control**		
End Date	12/31/2020			
☐ Is upstream embedded in the values reported?		**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)		*3,429.71*	*0*	*3,429.7092*
Energy Consumed (kWh)		*1,901,378.39*	*0*	*1,901,378.388*
Energy Intensity (kWh/vol. converted to MG)		*554.4*	*0.0*	*554.4*

Quantity of Self-Generated Renewable Energy

676,649.50 kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Metered Data

Data Quality Narrative:

Utility bills from PG&E and ABAG Gas for the associated time period are used as the source for energy consumption data. Solar utility bills from Integrys Solar LLC are included in the Quantity of Self-Generated Renewable Energy. Ayer pump station shares a meter with Milpitas Sports Center. The City is unable to clearly define what proportion of electricity cost is used by the pump vs the sports center. It is assumed that 50% is consumed by water pumps.

Narrative:

Total energy consumption represents the energy consumed for plumbing and distribution of drinking water.

Table O-2. Recommended Energy Intensity – Wastewater & Recycled Water

Urban Water Supplier:	*City of Milpitas*

Table O-2: Recommended Energy Reporting - Wastewater & Recycled Water					
Enter Start Date for Reporting Period	1/1/2020	**Urban Water Supplier Operational Control**			
End Date	12/31/2020	**Water Management Process**			
☐ Is upstream embedded in the values reported?		Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Water Units Used	MG				
Volume of Wastewater Entering Process (volume units selected above)		*2,032.00*	*0*	*0*	*2,032.00*
Wastewater Energy Consumed (kWh)		*407,706.10*	*0*	*0*	*407,706.10*
Wastewater Energy Intensity (kWh/vol. converted to MG)		*200.6*	*0.0*	*0.0*	*200.6*
Volume of Recycled Water Entering Process (volume units selected above)		*0*	*0*	*0*	*0*
Recycled Water Energy Consumed(kWh)		*0*	*0*	*0*	*0*
Recycled Water Energy Intensity (kWh/vol. converted to MG)		*0.0*	*0.0*	*0.0*	*0.0*

Quantity of Self-Generated Renewable Energy related to recycled water and wastewater operations

543,351.00 kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Metered Data

Data Quality Narrative:

Utility bills from PG&E for the associated time period are used as the source for energy consumption data. Solar utility bills from Integrys Solar LLC are included in the Quantity of Self-Generated Renewable Energy.

Narrative:

The City does not operate recycled water collection, treatment or discharge. The City does not treat or discharge wastewater, however the City does operate two wastewater pump stations. City wastewater is collected at the Main Lift Pump Station which pumps to the San Jose-Santa Clara Regional Wastewater. The second pump station, Venus Way Lift Station pumps sewage from a small portion of the City then flows to the Main Lift Station.

7 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Lay Description

Chapter 7 contains information about the City of Milpitas's water service reliability and its Drought Risk Assessment (DRA). Assessing water service reliability is the fundamental purpose for water suppliers to prepare an UWMP. Water service reliability reflects the supplier's ability to meet the water needs of its customers under varying conditions. This chapter integrates information from SFPUC, BAWSCA, Valley Water and the City about water reliability and planning for water shortages.

7.1 Introduction

Chapter 7 incorporates information about its supply from SFPUC and Valley Water (described in Chapter 6) and its water uses (described in Chapter 4) and provides an evaluation of the City's risk under a severe drought period lasting for the next five consecutive years (California Water Code Section 10635).

For its overall reliability assessment, the City uses current information from Valley Water, SFPUC and BAWSCA to assess its water service reliability under varying hydrologic and regulatory conditions. This analysis looks beyond the City's past experience and considers what could be reasonably foreseen in the future.

In the 2015 UWMP, the City was required to evaluate its supplies and demands under a drought period lasting for three consecutive years. By comparison, the 2020 UWMP requires the City to develop a DRA, that evaluates its risk under a severe drought period lasting for the next five consecutive years. The DRA is an important element for selecting the City's demand management measures (DMMs, Chapter 9) and for planning projects for a reliable water supply. The DRA and DMMs are part of the City's WSCP (Appendix I).

In this chapter, the City also presents other water management measures in which the City has invested resources for long-term management and planning, such as the use of advanced technologies: advanced metering infrastructure (AMI), supervisory control and data acquisition (SCADA), and geographic information systems (GIS) for managing its water system and supplies effectively. Potential impacts from new development and climate change are long-term variables in the City's supply planning.

The City incorporates the current information from SFPUC and BAWSCA [20] to present its supply availability under the two contrasting scenarios SFPUC provided: Scenario 1 – with the Bay Delta Plan. Using Scenario 1, the City presents its water supply and potential cutbacks – its water supply reliability – under the following hydrologic conditions:

- normal hydrological conditions,
- a single dry year, and
- five consecutive years of drought.

The analysis is conducted in 5-year increments to project what conditions may look like for the next 25 years.

[20] Ibid.

In BAWSCA's Attachment B, Updated 2020 UWMP Drought Cutback tables for near-term single -year and multi-year droughts,[21] the data are based on SFPUC's guidance for Scenario 1 and Scenario 2 (presented in SFPUC Tables 1 through 10) and forecast agency purchases for 2021 through 2025:

- 2020 – actual agency purchases from SFPUC were used for 2020.
- 2021 and 2022 – Updated (January 2021) agency projected RWS purchases are used by BAWSCA for drought cutbacks in 2021 and 2022.
- 2023 and 2024 – BAWSCA calculated projected purchases assuming a linear change from 2022 to 2025.
- 2025 – BAWSCA Demand Study projected RWS purchases are used for 2025.

Although it is not possible to predict specific future regulatory and development variables, to the extent they can be addressed, they are discussed in this chapter.

7.2 Water Service Reliability Assessment

Every Supplier is required to provide their expected water service reliability projections for a normal year, single dry year and five consecutive dry years.

Given that the City partially relies on supplies from SFPUC and Valley Water, a discussion about the potential impacts on the SFPUC and Valley Water service reliability, due to the Bay-Delta Plan Amendment adoption, is warranted and presented below.

7.2.1 SFPUC system

In December 2018, the State Water Board adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay Delta Plan) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The adopted Bay Delta Plan 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"[22] 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.

As described in Chapter 6, the SFPUC RWS's dominant supply is from the Tuolumne River watershed at high elevations in the Sierra Nevada Mountains. This main source of water for the SFPUC RWS is augmented by treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo counties.

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 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.

Since the City's water supply relies partially on the SFPUC RWS, impacts from the potential implementation of the Bay Delta Plan, as presented in SFPUC's Scenario 1, will impact the City's service reliability. The City will be

[21] BAWSCA Attachment B: Updated 2020 UWMP Drought Cutbacks, BAWSCA, April 8, 2021. See Appendix L for more details.

[22] "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.

able to meet the projected water demands presented in this UWMP in normal years but would experience supply shortages in single dry years and multiple dry years. Such implementation of the Bay Delta Plan will require rationing in all single dry years and multiple dry years.

For the 2020 UWMPs, SFPUC provided two scenarios, using hydrologic models with and without the Bay Delta Plan Amendment. BAWSCA, in turn, provided drought cutback allocations based on the information about projected water supply availability for the wholesale customers from SFPUC. All of BAWSCA's allocation tables assume that the wholesale customers can purchase up to 184 mgd from SFPUC's RWS through 2045.

In normal years 100 percent of the City's ISG is available to the City, that is 9.232 mgd. Assumptions from SFPUC about dry-year water supply projects are included in SFPUC's Water System Improvement Program (WSIP) and considered in SFPUC's Regional Water System supply reliability.[23] The SFPUC's Regional Water System supply reliability data reflect SFPUC's projected instream flow requirements under each scenario.

The City's expected water service reliability projections for a normal year, single dry year and five consecutive dry years are presented in:

- Table 7-1 shows the City's water service reliability projections for a normal year, single dry year and five consecutive dry year supply compared to the City's normal year supply for 2021 through 2025.
- Table 7-2 shows a normal year supply and demand comparison through 2045.
- Table 7-3 shows a single dry year supply and demand comparison through 2045.
- Table 7-4 shows a multi-dry year supply and demand comparison through 2045.
- Table 7-5 is the DRA, showing a five-year Drought Risk Assessment to address Water Code Section 10635(b), for a multi-dry year supply and demand comparison from 2021 through 2025.

Note that the City's Tables 7-2 through 7-4 extend to the year 2045, beyond the requirement of 2040 [Water Code Section 10635(a)].

7.2.2 Valley Water System

To maintain water supply reliability and flexibility, Valley Water's water supply includes a variety of sources including local groundwater, imported water, and local surface water. Valley Water has an active conjunctive water management program to optimize the use of groundwater and surface water, and to prevent groundwater overdraft and land subsidence.

Long-term planning and modeling analysis performed by Valley Water as part of its Integrated Water Resources Planning Study (IWRP) indicates that if additional investments are made, future countywide demands can reliably be met. It is the intent of Valley Water to invest in accordance with the IWRP framework to develop a flexible resource mix. This flexibility will allow Valley Water to respond to uncertain future conditions.

Valley Water's first IWRP report, completed in 1997, identified alternative water resource strategies and ranked them against planning objectives that ultimately resulted in a final preferred strategy.

That strategy identified three programs corresponding to a range of future water shortage levels, with components phased in over time, based on demand.

The 2003 IWRP developed a planning framework and supporting modeling tools to help Valley Water identify and select specific water resource investments. The 2003 IWRP evaluation was based on a best estimate of the water demand and water supply outlook through 2040. Future water demand was estimated based on data from ABAG, Department of Finance and general plans from cities and Santa Clara County. The demand projection for the cities in Santa Clara County did not distinguish between Valley Water or SFPUC supplies.

[23] SFPUC Regional Water System supply reliability letter from SFPUC, January 22, 2021.

The key findings from the 2003 IWRP are: (1) securing baseline supplies is top priority for ensuring reliability, 2) a mix of three types of new water supply investments makes the best water supply portfolio, and 3) local supplies decrease vulnerability.

Based upon the findings above, the IWRP 2003 provides three recommendations to ensure reliability through 2040.

1. Secure the Baseline

Valley Water's baseline includes existing water supplies, infrastructure, and programs, including the groundwater basins, reservoirs, imported water supplies, water rights, water use efficiency programs, and water utility infrastructure. The key steps to secure this baseline supply and Valley Water's progress are summarized below:

- Improve infrastructure reliability – Valley Water is evaluating the condition of its water treatment plants and distribution system and is rehabilitating aging or defective components. Improving local infrastructure is vital to ensuring reliability of both the water treatment and conveyance systems during emergencies.
- Expand groundwater management - Local groundwater basins supply nearly half of the water used annually in Santa Clara County and also provide emergency reserve for droughts or outages. Valley Water is considering development of Valley Water-owned groundwater extraction facilities to utilize this resource during emergencies -- particularly during outages of the treated water system -- and to maximize conjunctive use opportunities.
- Sustain existing supplies – Valley Water is protecting imported water supplies by resolving contract and policy issues, supporting Bay-Delta system improvements, resolving the San Luis Reservoir low-point problem, and supporting SFPUC efforts to implement a Capital Improvement Program to secure the long-term reliability of SFPUC supplies in the County. Valley Water is protecting local water supplies by maintaining local water rights and protecting the local groundwater basins.
- Reaffirm commitments to water conservation and recycling -Valley Water is investing in conservation and recycling, as demonstrated by its water conservation programs and investment into the Silicon Valley Advanced Water Purification Center.
- Continue to provide clean, safe drinking water – Valley Water has an aggressive source water protection program to meet and exceed water quality standards by conducting ongoing improvements to treatment facilities.

2. Implement the "No Regrets" Portfolio for Near-Term Reliability (Phase I)

IWRP 2003 identified a "No Regrets" investment portfolio to ensure reliability through about 2020. With these investments, potential shortages through about year 2020 are reduced to levels that can be managed through contingency planning and response, including spot market transfers or demand management measures. IWRP 2003 stakeholders endorsed the No Regrets portfolio, which calls for the following new near-term investments:

- 28,000 AF of additional annual savings from agricultural, and municipal and industrial conservation.
- 20,000 AF of additional groundwater recharge capacity.
- 60,000 AF of additional capacity in the Semitropic Water Bank.

3. Flexible Options for Long Term Planning

Critical steps to ensure long-term water supply reliability include monitoring for risks, new opportunities, and technology improvements, further investigating desalination feasibility and recycled water acceptance and marketability, exploring potential water management and water quality improvement alternatives, and maximizing external funding.

Valley Water finds that its water supply will reliably meet future countywide demands. Although this UWMP presents projections of future water supply by source, ongoing coordination with Valley Water will be necessary to ensure projections are consistent with Valley Water's long-term water management strategies. The City will continue to work with Valley Water to refine future water supply projections and ensure long-term planning efforts are consistent.

Valley Water is pursuing a purified water program to improve water supply reliability, consistent with the Water Supply Master Plan. The project is planned be an indirect portable reuse project of approximately 11,000 acre feet of water with an advanced purification facility in either San Jose, next to the Silicon Valley Water Advanced Purification Center, or in Palo Alto, to recharge water at the Los Gatos Ponds System. At the time of the writing of this UWMP, Valley Water is developing the project description including the notice of preparation, which will be the first formal notification of Valley Water's intent to proceed with the project.

7.2.3 Service Reliability – Constraints on Water Sources

To the extent practical, DWR requires retail suppliers to include information from their wholesale supplier about constraints on their water supply [Water Code section 10631 (b)(1)].

The amount of water available from SFPUC's RWS and Valley Water's Agreement No. A0657 for a Supply of Treated Water for the City is constrained by climate, hydrology, facilities, and the institutional parameters that allocate the water supply from the Tuolumne River. Climate change may affect the snow-pack storage and water availability in future.

The recent changes to instream flow requirements for SFPUC and wholesale customer demand projections have affected SFPUC's water supply planning. 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.

Constraints on the SFPUC and Valley Water supplies were discussed in more detail in Chapters 3, 4, and 6. The main long-term constraints on supplies are due to climate change and regulatory changes. Key factors impacting water supply for both wholesalers include:

- Changes in precipitation patterns, such as time of snowfall or rain, intensity, and duration.
- Changes in water quality as a result of changes in precipitation patterns and storage.

The below-noted constraints potentially will affect SFPUC's Hetch-Hetchy watershed and management of the RWS water supply and its distribution.

- Fewer months of continuous below freezing (-32F) temperatures in the Sierra Nevada, resulting in less precipitation as snow, shorter duration for snowpack storage.
- Warmer temperatures leading to melt of the snowpack storage.
- Inadequate storage capacity to store the snowmelt water source.
- Regulatory changes affecting the SFPUC water supplies, such as implementation of the Bay Delta Plan Amendment that could reduce supply water for the SFPUC RWS by 60% in drought years.

The below-noted constraints potentially will affect Valley Water's treated surface water and groundwater supply.

- Groundwater availability
- Regulatory changes impacting the State Water Project supply availability

Potential Constraints on SFPUC's RWS Supply – Adoption of the 2018 Bay-Delta Plan Amendment

The State Water Board 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 State Water Board'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 State Water Board 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 State Water Board "as early as possible after December 1, 2019." In accordance with the State Water Board'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 State Water Board ("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.[24]

Compared to the reliability projections that were provided by the SFPUC for BAWSCA agencies for the 2015 UWMP, for the 2020 UWMP, the biggest difference is in SFPUC's projected future deliveries to BAWSCA agencies as a result of SFPUC's assumptions about the implementation of the Bay Delta Plan. Given the uncertainty about the implementation of the Bay Delta Plan, in January and February 2021, the SFPUC provided BAWSCA agencies two contrasting scenarios to choose from for water reliability during single and multiple-year droughts.[25]

In their Table 3, "Basis of Water Supply Data, 2020 Infrastructure Conditions With Bay Delta Amendment", SFPUC shows the wholesale volume to BAWSCA that ranges, in a single dry year, from 157.5 mgd (approximately a 14 percent cutback from its Supply Assurance of 184 mgd) to reductions of 74.5 mgd (approximately a 60 percent cutback from its Supply Assurance of 184 mgd) in the third through fifth dry year.[26]

Scenario 1, with Bay Delta Plan, includes severe water cutbacks of 60% (from normal year total wholesale agency supply of 184 mgd), starting with the second year of a multi-year drought, if the Bay Delta Plan cutbacks are

[24] California Natural Resources Agency. Web page: Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds. https://files.resources.ca.gov/voluntary-agreements/

[25] SFPUC, letters to BAWSCA, SFPUC RWS Supply Reliability, January 22; and February 3, 2021.

[26] SFPUC, letter to BAWSCA, Danielle McPherson, January 22, 2021.

applied to SFPUC's water supply. Scenario 2, without the Bay Delta Plan, assumes water supply reductions of approximately 28 percent (from normal year total wholesale agency supply of 184 mgd), starting with the fourth year of a multi-year drought, if the Bay Delta Plan Amendment cutbacks are not applied to SFPUC's water supply. Using the two SFPUC assumptions, BAWSCA developed water shortage cutback allocations for each BAWSCA water agency. The drought allocation cutback calculations use actual historic and forecast water demands through 2045.

Regulatory changes, such as the Bay Delta Plan Amendment, can significantly impact the reliability of the City's water supply. Consequently, the City through BAWSCA is continuing to participate in discussions about the development of the Bay Delta Plan implementation. Additionally, the City is working collaboratively with BAWSCA and its agencies to identify regional mitigation measures during severe water shortages to improve reliability for regional and local water supplies and meet its customers' water needs.

SFPUC Alternative Water Supply Planning Program[27]

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 (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 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 are as follows:

- 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).

In addition to the Daly City Recycled Water Expansion project[28], the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water

[27] Draft Common Language, SFPUC, February 3, 2021.

[28] 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. Source: SFPUC, February 3, 2021.

supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse.

The capital projects that are under consideration by SFPUC 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 yields from these projects are not currently incorporated into SFPUC's supply projections. SFPUC plans to pursue state and federal grants and other financing opportunities for eligible projects, to the extent feasible, to offset costs borne by ratepayers. The main regional projects include:

- Daly City Recycled Water Expansion (Regional, Normal- and Dry-Year Supply)
- ACWD-USD Purified Water Partnership (Regional, Normal- and Dry-Year Supply)
- Crystal Springs Purified Water (Regional, Normal- and Dry-Year Supply)
- Los Vaqueros Reservoir Expansion (Regional, Dry Year Supply)
- Bay Area Brackish Water Desalination (Regional, Normal- and Dry-Year Supply)
- Calaveras Reservoir Expansion (Regional, Dry Year Supply)
- Groundwater Banking (Regional, Dry-Year Supply) in the Modesto Irrigation District and Turlock Irrigation District service areas could be used to provide some additional water supply to meet instream releases in dry years reducing water supply impacts.
- Inter-Basin Collaborations (Regional, Dry-Year Supply) 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.

Details of these projects can be found in the SFPUC UWMP.

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 may have 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 BAWSCA service area 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.

SFPUC's Water System Improvement Program (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.

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.

Details of these projects can be found in the SFPUC UWMP.

Constraints on the Valley Water System

Valley Water Standard Text

Groundwater

Constraints on groundwater:

Valley Water manages the Santa Clara and Llagas subbasins for the benefit of its groundwater customers and the county at large. Since the 1930s, Valley Water's water supply strategy has been to maximize conjunctive use of surface water and groundwater supplies to enhance water supply reliability and avoid land subsidence. Local groundwater resources make up the foundation of the county's water supply, but they need to be augmented by Valley Water's comprehensive water management activities to reliably meet the needs of county residents, businesses, agriculture, and the environment. These activities include managed recharge of imported and local supplies and in-lieu groundwater recharge through the provision of treated surface water and raw water, acquisition of supplemental water supplies, and water conservation and recycling.

Groundwater supply is largely constrained by hydrologic variability and the estimated 548,000 AF of operational storage capacity within the subbasins. The inflows to the groundwater subbasins are constrained by Valley Water's managed aquifer recharge program and natural recharge. Valley Water has about 144,000 AFY of managed recharge capacity, including more than 90 miles of in-stream recharge and 102 off-stream recharge ponds. Maintaining Valley Water's managed recharge program requires ongoing operational planning for the distribution of local and imported water to recharge facilities; maintenance and operation of reservoirs, diversion facilities, distribution systems, and recharge ponds; and the maintenance of water supply contracts, water rights, and relevant environmental clearance. Valley Water's managed recharge program is critical to maintaining groundwater supply, because natural recharge is insufficient to meet groundwater demands. However, protecting natural recharge capacity is also important. Valley Water's District Act and Board policy help preserve open space that supports agriculture and natural recharge capacity.

- Groundwater quality can also be a constraint on groundwater supply. In general, the Santa Clara and Llagas Subbasins have high-quality groundwater, except for nitrate, which is elevated in some wells in the Coyote Valley and Llagas Subbasin from historic and ongoing sources including fertilizers, septic systems, and animal waste. However, nitrate concentrations are generally stable or declining and Valley Water has many programs to protect groundwater quality, including several targeted to improve nitrate in groundwater. Additional details about constraints on groundwater supply and quality and Valley Water's comprehensive groundwater management strategies are described in the 2016 Groundwater Management Plan https://www.valleywater.org/your-water/where-your-water-comes-from/groundwater/sustainable-groundwater-management.

The City's water quality may also be affected if SFPUC's sources of water change significantly. The City's current water quality is characterized in the Annual Water Quality Report and can be found online: https://www.ci.milpitas.ca.gov/_pdfs/2019-Water-Quality-Report.pdf. Specific expected changes will be identified when alternative water supplies are considered for implementation.

7.2.4 Year Type Characterization

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
- San Mateo County watersheds.

In general, 85 percent of the SFPUC 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. SFPUC's adopted WSIP retains this mix of water supply for all year types.

Details about the projected projects and mix of water supply from SFPUC's watersheds can be found in the 2020 SFPUC UWMP.

Types of Years

In its 2020 UWMP Guidebook, DWR uses the terms *normal* and *average* interchangeably when addressing the water year type. DWR requires, as part of the water service reliability assessment in the DRA, that water suppliers include three types of years with specific hydrologic conditions. These include:

Normal Year. Normal Year. This condition represents the normal/average water supplies from SFPUC for BAWSCA agencies, and Valley Water for its water contractors This condition represents the normal/average water supplies from SFPUC for BAWSCA agencies, 67,160 MG (184 mgd).

Single Dry Year. The single dry year represents the year with the lowest water supply available from SFPUC to the City. As can be seen in Tables 7-1a through 7-1e, with Bay Delta Plan for each of the base years from SFPUC for the City, the available water supply in a single-dry year.

Five-Consecutive-Year Drought. The five-consecutive year drought for the DRA is the driest five-year historical sequence for the water supply (Water Code Section 10612). For the water service reliability assessment, the City is using 2020 as its base year, because the City's demand volume is based on the actual 2020 purchases from SFPUC and Valley Water. As recommended by DWR, the City uses the same five-year sequence (2021–2025) for its water service reliability assessment. Note that the SFPUC derived the five-year consecutive drought based on the driest five-year sequence in the hydrologic record. This supply condition is a requirement of Water Code Section 10612. The SFPUC has provided information about the likelihood of this severe condition in their 2020 UWMP.

Valley Water Standard Text

The greatest challenge to Valley Water's water supply reliability is multiple dry years, such as those that occurred in 1988 through 1992 and in 2012 through 2016. The five dry-year period used in this analysis is 1988 to 1992, which was an extended drought within historic record and WEAP modeling period. The most recent 2012-2016 drought is more severe, but imported water allocations are not available from DWR DCR 2019 for the analysis. The analysis indicates that with existing and planned projects' supplies, Valley Water's diverse water supplies are sufficient to meet demands throughout the full five-year drought in all demand years without having to call for short-term water use reductions.

Submittal Tables

DWR requests that suppliers provide their supply reliability for a normal year, a single dry year, and multiple (five) consecutive dry years. The City has reported this information in Table 7-1.

The reduction measures for all levels of the City's WSCP are discussed in the WSCP (see Appendix I of this UWMP).

Table 7-1a. Basis of Water Year Data (SFPUC 2020 Base Year with Bay-Delta Plan)

Submittal Table 7-1a Retail: Basis of Water Year Data (Reliability Assessment) - SFPUC 2020 Base Year with Bay-Delta Plan			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available MGY	**% of Average Supply**
Average Year	2020	2162	100%
Single-Dry Year	2021	2148	
Consecutive Dry Years 1st Year	2021	2148	
Consecutive Dry Years 2nd Year	2022	1950	
Consecutive Dry Years 3rd Year	2023	1034	
Consecutive Dry Years 4th Year	2024	1034	
Consecutive Dry Years 5th Year	2025	1034	

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is SFPUC with a base year of 2020 with the Bay-Delta Plan.
2. There is no historical basis for supply availability since the future supplies are not based on historical water years. Based on SFPUC Drought Allocation, dated April 1, 2021, Table F2 Individual Agency Drought Allocations, base year 2020, with Bay Delta Plan, which present supplies by projected years in five-year increments for single and multiple dry years. Average year based on SFPUC Drought Allocations Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045.

Table 7-1b. Basis of Water Year Data (SFPUC 2025 Base Year with Bay-Delta Plan)

Submittal Table 7-1b Retail: Basis of Water Year Data (Reliability Assessment) - SFPUC 2025 Base Year with Bay-Delta Plan			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available MGY	**% of Average Supply**
Average Year	2025	2407	100%
Single-Dry Year	2026	1538	
Consecutive Dry Years 1st Year	2026	1538	
Consecutive Dry Years 2nd Year	2027	1319	
Consecutive Dry Years 3rd Year	2028	1319	
Consecutive Dry Years 4th Year	2029	1319	
Consecutive Dry Years 5th Year	2030	1319	

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is SFPUC with a base year of 2025 with the Bay-Delta Plan.
2. There is no historical basis for supply availability since the future supplies are not based on historical water years. Based on SFPUC Drought Allocation, dated April 1, 2021, Table G2 Individual Agency Drought Allocations, base year 2025, with Bay Delta Plan, which present supplies by projected years in five-year increments for single and multiple dry years. Average year based on SFPUC Drought Allocations Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045.

Table 7-1c. Basis of Water Year Data (SFPUC 2030 Base Year with Bay-Delta Plan)

Submittal Table 7-1c Retail: Basis of Water Year Data (Reliability Assessment) - SFPUC 2030 Base Year with Bay-Delta Plan			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available MGY	**% of Average Supply**
Average Year	2030	2465	100%
Single-Dry Year	2031	1571	
Consecutive Dry Years 1st Year	2031	1571	
Consecutive Dry Years 2nd Year	2032	1348	
Consecutive Dry Years 3rd Year	2033	1348	
Consecutive Dry Years 4th Year	2034	1348	
Consecutive Dry Years 5th Year	2035	1348	

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is SFPUC with a base year of 2030 with the Bay-Delta Plan.
2. There is no historical basis for supply availability since the future supplies are not based on historical water years. Based on SFPUC Drought Allocation, dated April 1, 2021, Table H2 Individual Agency Drought Allocations, base year 2030, with Bay Delta Plan, which present supplies by projected years in five-year increments for single and multiple dry years. Average year based on SFPUC Drought Allocations Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045.

Table 7-1d. Basis of Water Year Data (SFPUC 2035 Base Year with Bay-Delta Plan)

Submittal Table 7-1d Retail: Basis of Water Year Data (Reliability Assessment) - SFPUC 2035 Base Year with Bay-Delta Plan			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available MGY	**% of Average Supply**
Average Year	2035	2568	100%
Single-Dry Year	2036	1633	
Consecutive Dry Years 1st Year	2036	1633	
Consecutive Dry Years 2nd Year	2037	1399	
Consecutive Dry Years 3rd Year	2038	1399	
Consecutive Dry Years 4th Year	2039	1399	
Consecutive Dry Years 5th Year	2040	1282	

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is SFPUC with a base year of 2035 with the Bay-Delta Plan.
2. There is no historical basis for supply availability since the future supplies are not based on historical water years. Based on SFPUC Drought Allocation, dated April 1, 2021, Table I2 Individual Agency Drought Allocations, base year 2035, with Bay Delta Plan, which present supplies by projected years in five-year increments for single and multiple dry years. Average year based on SFPUC Drought Allocations Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045.

Table 7-1e. Basis of Water Year Data (SFPUC 2040 Base Year with Bay-Delta Plan)

Submittal Table 7-1e Retail: Basis of Water Year Data (Reliability Assessment) - SFPUC 2040 Base Year with Bay-Delta Plan			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available MGY	**% of Average Supply**
Average Year	2040	2655	100%
Single-Dry Year	2041	1687	
Consecutive Dry Years 1st Year	2041	1687	
Consecutive Dry Years 2nd Year	2042	1446	
Consecutive Dry Years 3rd Year	2043	1446	
Consecutive Dry Years 4th Year	2044	1275	
Consecutive Dry Years 5th Year	2045	1275	

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is SFPUC with a base year of 2040 with the Bay-Delta Plan.
2. There is no historical basis for supply availability since the future supplies are not based on historical water years. Based on SFPUC Drought Allocation, dated April 1, 2021, Table J2 Individual Agency Drought Allocations, base year 2040, with Bay Delta Plan, which present supplies by projected years in five-year increments for single and multiple dry years. Average year based on SFPUC Drought Allocations Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045.

Valley Water has historically met demand in its service in all year types from its watersheds except for the recent drought in 2017 where they had a 20% cutback.

Table 7-1f. Basis of Water Year Data (Valley Water)

Submittal Table 7-1f Retail: Basis of Water Year Data (Reliability Assessment) - Valley Water			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	**% of Average Supply**
Average Year	1922-2015		100%
Single-Dry Year	1977		100%
Consecutive Dry Years 1st Year	1987		100%
Consecutive Dry Years 2nd Year	1988		100%
Consecutive Dry Years 3rd Year	1989		80%
Consecutive Dry Years 4th Year	1990		80%
Consecutive Dry Years 5th Year	2017		80%

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is Valley Water.
2. Source per Valley Water Draft 2020 UWMP March 29, 2021 Chapter 7.
   Based on historic cutbacks and Valley Water's 2019 Supply Master Plan, the City would expect 20% cutbacks from Valley Water supplies in dry years 3, 4, and 5.

Table 7-1g. Basis of Water Year Data (Recycled Water)

Submittal Table 7-1g Retail: Basis of Water Year Data (Reliability Assessment) - Recycled Water			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	**% of Average Supply**
Average Year	2020		100%
Single-Dry Year	2020		100%
Consecutive Dry Years 1st Year	2020		100%
Consecutive Dry Years 2nd Year	2020		100%
Consecutive Dry Years 3rd Year	2020		100%
Consecutive Dry Years 4th Year	2020		100%
Consecutive Dry Years 5th Year	2020		100%

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is recycled water.
2. Recycled water supplies in any dry year align with 2020 supplies.

Table 7-1h. Basis of Water Year Data (Groundwater)

Submittal Table 7-1h Retail: Basis of Water Year Data (Reliability Assessment) - Groundwater			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	**% of Average Supply**
Average Year	2030	0	100%
Single-Dry Year	2030	1314	
Consecutive Dry Years 1st Year	2030	1314	
Consecutive Dry Years 2nd Year	2031	1314	
Consecutive Dry Years 3rd Year	2032	1314	
Consecutive Dry Years 4th Year	2033	1314	
Consecutive Dry Years 5th Year	2034	1314	

NOTES:

1. There are multiple versions of Table 7-1 and the source of water for this table is groundwater.
2. One or more groundwater wells pumping at 1.2 mgd will be developed for use in all dry year types only as supply augmentation to reduce shortfall. Possibly 4 wells by year 2035. Volume to be developed based on shortfall magnitude. Assume 3 emergency wells will be converted to dry year supply wells by 2030. This assumes a drought year aquifer will produce sustainable yields.

7.2.5 Water Service Reliability

Every urban water supplier is required to include an assessment of its water service reliability to its customers through at least 2040, in five-year increments, during normal, dry, and multiple dry water years [Water Code Section 10635(a)].

Reliability of the SFPUC Regional Water System

Since the City purchases over 60% of its water from the SFPUC, it is highly dependent on the SFPUC RWS infrastructure reliability. The SFPUC's nearly completed Water System Improvement Program (WSIP) provides improvements in reliability for water delivery and supply through the SFPUC RWS. The SFPUC's 2020 Capital Improvement Program (CIP) includes various projects to enhance reliability of the SFPUC RWS.[29]

In addition to SFPUC's infrastructure reliability for the RWS, the imported water available to SFPUC's retail and wholesale customers is constrained by climate, geology, hydrology, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir and snow-pack storage to manage its water supplies. A summary of SFPUC's vulnerability assessment related to climate change is included in Section 6.2.10.1.

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.[30]

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 for the regional system of 265 mgd and for wholesale suppliers (BAWSCA agencies) of 184 mgd from the SFPUC watersheds for 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.

These performance objectives serve as the basis for water supply planning by SFPUC for the RWS.

In planning for water service reliability during droughts, BAWSCA worked with SFPUC to develop a two Tier, Tier One and Tier Two drought allocation plan. The two Tiers are discussed below.

SFPUC's Tier One Plan for drought allocations

SFPUC's "Tier One Plan" applies only to water shortages less than 20 percent and when the SFPUC determines that a system-wide water shortage exists, and a declaration of a water shortage emergency is issued under

[29] SFPUC 2020 Capital Improvement Plan, adopted February 11, 2020. San Francisco Public Utilities Commission : 2020 Agendas-Minutes

[30] Reliability of the Regional Water System, SFPUC, February 3, 2021.

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. The SFPUC's 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 SFPUC's Retail Customers to conserve a minimum of 5 percent during droughts. If SFPUC's Retail Customer demands are lower than the Retail Customer allocation (resulting in a "positive allocation" to Retail[31]) then the excess percentage would be re-allocated to the Wholesale Customers' share. The additional water conserved by SFPUC Retail Customers up to the minimum 5 percent level is deemed to remain in storage for allocation in future successive dry years.

BAWSCA's Tier Two Drought Allocations

BAWSCA agencies have negotiated and adopted the Tier Two Plan that applies only to water shortages less than 20 percent. Once SFPUC identifies a Tier One shortage, then BAWSCA allocates the collective Wholesale Customer share from the available SFPUC Tier One Plan supply among each of the 26 Wholesale Customers for drought shortages. These Tier Two allocations are based on a formula which takes into account multiple factors for each Wholesale Customer including the following:

- Individual Supply Guarantee (ISG; the City's ISG is 9.232 mgd or 3,370[32] MG/year)
- Seasonal use of all available water supplies
- Residential per capita use

The water made available to the Wholesale Customers collectively is 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 Water Supply Agreement (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 for water shortages that are up to 20 percent. 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.

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

[32] The City of Milpitas's ISG value is rounded from 9.232 million gallons per day.

Additional BAWSCA Efforts to Facilitate Water Supply Reliability

BAWSCA, on behalf of its member agencies, facilitates local projects that augment water supply reliability. BAWSCA's key water management objective is to ensure that a reliable, high quality supply of water is available where and when people within the BAWSCA service area need it. A reliable supply of water is required to support the health, safety, employment, and economic opportunities of the existing and expected future residents in the BAWSCA service area and to supply water to the agencies, businesses, and organizations that serve those communities.

In 2018, BAWSCA began working with SFPUC to amend the 2009 Water Supply Agreement (WSA) between SFPUC and BAWSCA's member agencies. One amendment to the 2009 WSA requires the SFPUC to formally engage with BAWSCA during the SFPUC's development of its 10-year CIP. This element will enhance the CIP development and focus attention on facilities that continue to improve reliability of the SFPUC RWS. An updated and restated WSA (also termed the 2019 WSA) was executed by the SFPUC and BAWSCA's member agencies in August 2019.[33]

In June 2020, BAWSCA completed its Demand Study that presents updated information about the BAWSCA service area demands and demand management as part of its strategy for a long-term reliable supply. The Demand Study identifies demand management measures for the commercial, irrigation, and residential sectors, and system water loss management.

BAWSCA Updated 2020 UWMP Drought Cutbacks based on SFPUC January 2021 Water Supply Reliability

As discussed in earlier chapters, BAWSCA's role in representing the interests of its 26 member agencies. is to work with SFPUC to ensure that the SFPUC meets its contractual obligations to maintain its infrastructure and provide a reliable, high quality, potable water supply at a fair price.

The updated drought cutback allocations that BAWSCA developed for the 2020 UWMPs are based on SFPUC's Scenario 1 and Scenario 2 (see Appendix L). BAWSCA's drought allocation cutback calculations use the SFPUC Regional Water System supply reliability models under extreme hydrologic conditions and on actual historic supply.

Note that the SFPUC derived the five-year consecutive drought based on the driest five-year sequence in the hydrologic record. This supply condition is a requirement of Water Code Section 10612. SFPUC has provided information about the likelihood of this severe condition in the SFPUC 2020 UWMP.[34]

Individual Supply Guarantee

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 mgd to its 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.

The City of Milpitas's ISG is 9.232 mgd

The City's ISG is of critical importance to its current and future customers for long-term vitality of its community, economy, and security.

SFPUC's Water Supply Reliability Evaluation[35]

[33] BAWSCA Capital Improvement Planning Comparison Study, September 2019, page 1. http://bawsca.org/uploads/userfiles/files/CIP%20Comparison%20Study%20_09-2019_V_Final_9_10_19.pdf

[34] SFPUC, April 2021, Likelihood of a five-year drought sequence as provided in their UWMP.

[35] 2020 UWMP SFPUC Common Language, February 3, 2021.

In general, 85 percent of the Regional Water System (RWS) 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 System Improvement Program (WSIP) retains this mix of water supply for all year types.

To evaluate its supply reliability, SFPUC closely monitors the hydrologic conditions impacting its watersheds in the Sierras and the San Francisco Bay Area. Based on hydrologic conditions, SFPUC routinely provides updates about its water supply that may impact water supply for BAWSCA agencies. Annual weather trends and long-term impacts from a changing climate are part of SFPUC's on-going analyses and are included in long-term planning for a reliable RWS water supply.

Unlike previous SFPUC water supply reliability forecasts that were mostly based on hydrologic conditions and projects that impacted infrastructure, in January 2021 SFPUC provided BAWSCA with two forecasts (Scenario 1 and Scenario 2) for the reliability of its water supply. The 2021 SFPUC water supply reliability evaluation incorporates potential extreme impacts to its RWS supply from regulatory changes due to the Bay Delta Plan Amendment (Bay Delta Plan) as well as a reference comparison with the current supply regime.[36] The Bay Delta Plan Amendment requires the release of 30-50% of the "unimpaired flow"[37] 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. 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.

The State Water Board has stated that it intends to implement the Bay Delta Plan on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. In its guidance for 2020 UWMPs, SFPUC assumes the impacts of the Bay Delta Plan will start in 2023, and during drought years after 2023, will reduce its supplies significantly. But implementation of the Bay Delta Plan is uncertain for multiple reasons that are presented in Section 7.2.1, Service Reliability – Constraints on Water Sources.

The SFPUC historically has met demand in its service area in all year types from its watersheds. For the 2020 UWMPs, SFPUC provided BAWSCA with two scenarios for water supply reliability forecasts. SFPUC's Scenario 1 presents water supply conditions with "The Bay Delta Plan" Amendment that requires drought cutbacks for BAWSCA agencies of more than 50 percent. SFPUC's Scenario 2 is "Without the Bay Delta Plan" and requires cutbacks to BAWSCA agencies of less than 20 percent.

For the 2020 UWMPs agencies are required to develop a Drought Risk Assessment (DRA) that assumes a single year and multiple years of drought, starting with 2021 through 2025. SFPUC provided tables with its forecast for Scenario 1 and 2 that provide specific water supply data to address the DRA. SFPUC's 2021 forecasts include drastic water supply cutbacks during droughts for BAWSCA wholesale agencies, as discussed in Section 7.2.1.

For prior drought planning for SFPUC wholesale water shortages of less than 20 percent, SFPUC and BAWSCA have developed the Water Shortage Allocation Plan (WSAP) to allocate shortages between the SFPUC and the Wholesale Customers collectively. In the two-tier drought allocation plan, Tier One applies to SFPUC and Tier Two applies to BAWSCA. They are explained in Section 7.2.3, Water Service Reliability.

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[36] Bay Delta Plan Update: Amendments and Substitute Environmental Document (SED) for lower San Joaquin River and Southern Delta– Adoption and approval of plan amendments and final SED. https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2018_sed/

[37] "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.)

However, the BAWSCA Tier two plan was not intended for shortages of more than 20 percent. Therefore, for the shortage scenarios and assumptions in SFPUC's Scenario 1 "with Bay Delta Plan Amendment" that reduce water use in dry years by almost 60 percent for its wholesale customers, BAWSCA developed an alternate drought cutback formula. [38] BAWSCA's alternate drought cutback formula method is used for the City's 2020 UWMP is explained in Section 7.2.3, Water Service Reliability.

Information Sources for Projected SFPUC RWS and Wholesale Purchases

SFPUC supply provides its projected supply availability and reliability based on hydrologic conditions and modeling, and regulatory and infrastructure constraints. wholesale supply allocations are based on projected BAWSCA wholesale purchases provided by BAWSCA member agencies. Active conservation by BAWSCA agencies is treated as a source of supply by BAWSCA, therefore projected wholesale purchases are after passive and active conservation.

Following the completion of BAWSCA's Demand Study in June 2020,[39] 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 water demand after passive conservation and entered active conservation, as calculated in each agency's DSS Model. The BAWSCA 2020 Demand Study was completed prior to ABAG publishing the final RHNA numbers and therefore was not included in the DSS Model.

Each year agencies are offered the opportunity to review and, if needed, revise their purchase forecasts in January. BAWSCA Agencies have provided BAWSCA with similar updates to projected purchases annually for the past 10 years. On January 15, 2021, BAWSCA transmitted agency purchase requests for SFPUC's use in their 2020 UWMP. This annual reporting is part of the SFPUC's wholesale rate setting process.

In the City's 2015 UWMP, the wholesale supply forecasts from SFPUC used the established Tier 1 drought allocation formula of up to 20 percent cutbacks. However, as explained above, a new drought cutback allocation method had to be developed by BAWSCA for the 2020 UWMPs in response to SFPUC's proposed wholesale customer cutbacks of up to 60 percent from normal supply during dry years.

For 2020 UWMPs, BAWSCA developed a new method to allocate SFPUC's wholesale available supply during dry years. BAWSCA's method results in an equal percent reduction shared across all wholesale customers when average wholesale customers' RWS shortages are 10 percent or less or greater than 20 percent.[40] This allocation method is intended to serve the purposes of the 2020 UWMP supply reliability analysis. It does not 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 multiple equity factors in the event that SFPUC is not able to deliver its contractual supply volume, and its cutbacks on RWS exceed 20 percent.

Key Findings of the Water Service Reliability Analysis

BAWSCA/SFPUC Reliability

The results of the current water reliability assessment affect the City's short- and long-term water management decisions. The City is working with BAWSCA and its member agencies to identify regional mitigation measures to improve reliability for regional and local water supplies and meet its customers' water needs.

However, implementation of feasible projects developed under the SFPUC's Alternative Water Supply Planning Program (discussed in Chapter 6 and the 2020 SFPUC UWMP) is not yet reflected in the supply reliability scenarios and may reduce the cutback allocations.

[38] BAWSCA Attachment B: Updated 2020 UWMP Drought Cutbacks, BAWSCA, March 1, 2021.

[39] BAWSCA Demand Study, June 2020.

[40] BAWSCA. (2021). BAWSCA Common Language, March 1, 2021, Attachment B, page 8.

If conditions for large drought cutbacks to BAWSCA wholesale agencies persist, such as those presented by SFPUC in Scenario 1, the City will need to implement additional demand management practices to invoke strict restrictions on potable water use, and obtain funding to accelerate developing alternate supplies of water.

Due to the continued uncertainty for the SFPUC water supply during droughts and impacts from the implementation of the Bay Delta Plan on its water supply reliability, in its 2020 UWMP, the City presents information for water supply reliability using SFPUC Scenario 1, with the Bay Delta Plan.

SFPUC is continuing negotiations with the California State Water Board on implementation of the Bay Delta Plan for water supply cutbacks, particularly during droughts. SFPUC is developing 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 drought cutback allocations may need to be revised before the City's 2025 UWMP.

With this uncertainty, the City could update its DRA (see Section 7.3) prior to the 2025 UWMP update if significant new information becomes available. The Water Code Section 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. The City anticipates that by the 2025 UWMP update, SFPUC will provide more specific information about the Alternative Water Supply Planning Program, with estimated water supply contributions from such projects. Additionally, the City expects that SFPUC will provide more specific information and a refined estimate of the Bay Delta Plan impacts to the SFPUC supply.

The City recommends that users of its 2020 UWMP contact City staff for potential updates about the City's water supply reliability and the Drought Risk Assessment (DRA) before using the 2020 UWMP drought cutback projections for their planning projects and referencing the drought allocations.

Valley Water's Water Supply Reliability Evaluation

Valley Water Standard Text

Demand and Supply Assessment

Valley Water maintains diverse water supply sources to meet countywide demands. Major sources of supply for Valley Water include natural groundwater recharge, local surface water, imported water from the State and Federal projects, and recycled and purified water. Below is a summary of the constraints to Valley Water's water supply sources.

Imported water – Valley Water's SWP and CVP water supplies are subject to hydrologic variability and a number of additional constraints including regulatory constraints, seismic threats to the Delta levee system, sea level rise, climate change, and water quality variations.

Groundwater – The groundwater supply is largely constrained by hydrologic variability and the estimated operational storage capacity within the subbasins. The inflows to the groundwater subbasins are constrained by Valley Water's managed aquifer recharge program and natural recharge. Groundwater quality can also be a constraint on groundwater supply.

Local surface water – Local surface water supplies are vulnerable to hydrologic variability and constrained by environmental regulations and permit requirements. Climate change may cause decreases in the ability to utilize local surface water supplies.

Recycled and Purified Water – The constraints on future recycled water deliveries include infrastructure capacity and the availability of recycled water. Some of the potential constraints on the development of potable reuse include reverse osmosis concentrate disposal, public acceptance, permitting, hydrogeologic conditions, wastewater availability from other agencies (Valley Water is not a wastewater agency), and cost.

Water Service Reliability

Valley Water's water service reliability was assessed by comparing supplies and demands under three hydrologic conditions – an average year, a single dry year, and five consecutive dry years. Valley Water uses the Water Evaluation and Planning (WEAP) model to evaluate water supply reliability under these conditions. Developed by the Stockholm Environment Institute, WEAP is a deterministic, integrated water resources management model that uses water demand and supply information and accounts for multiple and competing uses and priorities. Valley Water uses the WEAP model as a tool to support its long-term water supply planning. The WEAP model simulates Valley Water's water supply system comprised of facilities to recharge the county's groundwater subbasins, operation of reservoirs and creeks, treatment and distribution facilities, and raw water conveyance facilities. The model also accounts for non-Valley Water sources and distribution, such as supplies from the SFPUC, non-potable recycled water, and local water developed by other agencies, such as the San Jose Water Company. In essence, the model was formulated to simulate the management of the current and future water resources within the county.

Valley Water Standard Text (cont.)

Valley Water's WEAP water supply planning model operates on a monthly time-step that simulates the water supply and demand over 94 years, using the historic hydrologic sequence of 1922 through 2015. The model tracks water resources throughout the county and delivery of water to meet demands according to availability and priority. Average water supply reliability for average year, a single dry year, and five consecutive dry year sequence was based on the model results of the corresponding years in the 94-year model period.

Average Year Supply Reliability

Valley Water uses the average annual supply over the 94 modeled years to represent the average year condition. Under average conditions, Valley Water's projected water supplies exceed projected demand through 2045 in all demand years

Single Dry Year Supply Reliability

The single driest year in the 94 model years occurred in 1977, based on the historic hydrological record. Supplies appear to be sufficient to meet demands during a single dry year through 2045. This assumes that reserves are at healthy levels at the beginning of the year and that the projects and programs identified in the Valley Water's Water Supply Master Plan 2040 (WSMP) are implemented. Supplies available for this single year drought represent water needed not only for that single drought year, but also water that may be needed for a prolonged drought. Valley Water would manage the supplies reported in the table assuming the drought may continue beyond a single year, and thus not all supplies are expected to be used by retailers during the single year drought.

Multiple Dry Year Supply Reliability

The greatest challenge to Valley Water's water supply reliability is multiple dry years, such as those that occurred in 1988 through 1992 and in 2012 through 2016. The five dry-year period used in this analysis is 1988 to 1992, which was an extended drought within historic record and WEAP modeling period. The most recent 2012-2016 drought is more severe but imported water allocations are not available from DWR DCR 2019 for the analysis. The analysis indicates that with existing and planned projects' supplies, Valley Water's diverse water supplies are sufficient to meet demands throughout the full five-year drought in all demand years without having to call for short-term water use reductions.

Valley Water's basic water supply strategy to compensate for supply variability is to store excess wet year supplies in the groundwater basin, local reservoirs, San Luis Reservoir, and/or Semitropic Groundwater Bank, and draw on these reserve supplies during dry years to help meet demands. These reserves, along with existing and planned future projects in the WSMP, help Valley Water meet demands during a prolonged drought. Valley Water's Board updated its long-term water supply reliability level of service goal in January 2019. The goal is to develop supplies to meet 100% of annual water demand during non-drought years and at least 80% of annual water demand in drought years. Future projects and programs recommended in the WSMP, including additional long-term water conservation savings, water reuse, recharge capacity, storm water capture and reuse, and banking and storage, were developed in accordance with this policy to minimize the need to call for water use reductions greater than 20%.

City of Milpitas Service Reliability

The City's water service reliability assessment is based on historic and current information about water use in its service area, SFPUC's RWS water sources and SFPUC's water supply reliability and Valley Water Sources and Valley Water's water supply reliability. In its assessment, the City also includes impacts from climate change projections.

The City's Tables 7-2, 7-3, and 7-4 summarize the water supply reliability for a normal (average) year, a single dry year, and five- consecutive dry years, respectively, for 2025, 2030, 2035, 2040, and 2045.

Summary information and location of details is also included with the tables (notes).

In its reliability assessment, the City considers:

- The potential for acquiring supplemental water supplies.
- The potential for increased demands due to increased irrigation use due to low rainfall.
- Expected demand reduction due to increased implementation of demand management measures.
- Implementation of its updated 2020 WSCP with six shortage levels.
- Savings from local ordinances and standards.
- Increased drought messaging.

In Section 7.2.4, Description of Management Tools and Options, the City discusses potential management actions that it may take in response to the SFPUC shortages in the City's Tables 7-5 and 7-6. These two tables show projected shortages of SFPUC supply compared with the City's projected demand.

DWR's Optional Planning Tool

DWR provided an optional Planning Tool Worksheet for 2020 UWMP preparation. DWR's optional Planning Tool was introduced earlier in Chapter 4.

The City is not using the Planning Tool, instead the City is using information from SFPUC, BAWSCA, and its demand projections from the 2020 DSS Model, and January 2021 updates. The City's planning for drought cutbacks includes historical, current, and forecasts about water use, water sector growth, population, jobs, and conservation.

Water Service Reliability – Normal Year

In Table 7-2, DWR requests suppliers to provide their normal year supply and demand for comparison, in five-year increments through at least 2040. The normal year supply for BAWSCA agencies is 100 percent of SFPUC's Supply Agreement, that is 184 mgd. Therefore, in Table 7-2, under the City's normal supply is 100 percent of its ISG, that is 9.232 mgd. SFPUC normal year supply will meet the City's projected demands for 2025, 2030, 2035, 240, and 2045.

Table 7-2. Normal Year Supply and Demand Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	4,325	4,475	4,626	4,776	4,917
Demand totals *(autofill from Table 4-3)*	4,325	4,475	4,626	4,776	4,917
Difference	0	0	0	0	0

Water Service Reliability – Single Dry Year

In Table 7-3, DWR requests suppliers to provide their single dry year supply and demand for comparison, in five-year increments through at least 2040.

In Table 7-3, the City includes its supply reliability using SFPUC scenarios, with Bay Delta Plan for a single dry year through 2045. The City is using SFPUC Regional Water Supply Reliability, dated April 1, 2021 Updated Drought Allocations Based on SFPUC April 1, 2021 Letter, Tables G-2, H-2, I-2, J-2, and K-2 for 1st dry year allocation with Bay Delta Plan.

As can be seen in Table 7-3, with Bay Delta Plan, for a single dry year Supply and Demand Comparison, the City will experience significant water supply cutbacks, with the SFPUC supply. These SFPUC supply shortfalls will invoke the City's WSCP. The City will have to work closely with its customers. WSCP measures discussed in Section 7.2.5. The reduction measures for all levels of the City's WSCP are discussed in the WSCP (see Appendix I of this UWMP).

The City submitted Table 7-3, with Bay Delta Plan, in the WUE portal to comply with the 2020 UWMP requirements and to be consistent with its supplier, SFPUC.

Table 7-3. Single Dry Year Supply and Demand Comparison, with Bay Delta Plan

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	3,460	4,475	4,626	4,776	4,917
Demand totals*	4,325	4,475	4,626	4,776	4,917
Difference	(865)	0	0	0	0

NOTES:
1. Supply by year based on specific SFPUC supply with Bay Delta Plan and no cutbacks on Valley Water, recycled water and additional conservation supplies per Table 6-9.
2. Valley Water has not had any cutbacks in a single dry year, therefore no cutbacks in Valley Water supplies.
3. SFPUC supply source: Regional Water Supply Reliability dated April 1, 2021 Updated Drought Allocations Based on SFPUC April 1, 2021 Letter tables G-2, H-2, I-2, J-2, and K-2 1st dry year allocations. Milpitas's water supply from SFPUC is cutback in all year projections for a single dry year drought.
4. One or more groundwater wells pumping at 1.2 mgd will be developed for use in all dry year types as supply augmentation to reduce shortfall. Assume 3 wells online by 2030 and 4 wells by 2035. Assume groundwater well supplies will only be used as needed to offset shortfall.
5. Under shortfall conditions, it is assumed that water use reductions will be achieved by dry water year 2 and thereafter, and NOT in a single dry year. This is outlined in the WSCP and Table 8-2.

Water Service Reliability – Five Consecutive Dry Years

In Table 7-4, DWR requests suppliers to provide their multiple dry years supply and demand comparison multi-dry year (five) consecutive supply and demand for comparison, from 2025 through at least 2040.

In Table 7-4, the City includes its supply reliability using SFPUC scenarios with Bay Delta Plan for five multiple dry years (starting in 2025, 2030, 2035, 2040, and 2045). The City is using SFPUC Regional Water Supply Reliability, dated April 1, 2021 Updated Drought Allocations Based on SFPUC April 1, 2021 Letter, Tables G-2, H-2, I-2, J-2, and K-2 for 1st, 2nd, 3rd, 4th, and 5th dry year allocations with Bay Delta Plan.

Note that the SFPUC derived the five-year consecutive drought based on the driest five-year sequence in the hydrologic record. This supply condition is a requirement of Water Code Section 10612. SFPUC has provided information about the likelihood of this severe condition in 2020 SFPUC UWMP.

As can be seen in Table 7-4, with Bay Delta Plan, for multiple dry years supply and demand comparison, from 2025 through 2045, the City will experience significant water supply cutbacks.

Table 7-4. Multiple Dry Years Supply and Demand Comparison, with Bay Delta Plan

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First Year	Supply Totals	3,450	4,475	4,626	4,776	4,917
	Demand Totals	4,325	4,475	4,626	4,776	4,917
	Difference	(875)	0	0	0	0
Second Year	Supply Totals	3,230	4,475	4,626	4,776	4,917
	Demand Totals	4,325	4,475	4,626	4,776	4,917
	Difference	(1,095)	0	0	0	0
Third Year	Supply Totals	2,940	4,370	4,626	4,776	4,917
	Demand Totals	4,325	4,475	4,626	4,776	4,917
	Difference	(1,385)	(105)	0	0	0
Fourth Year	Supply Totals	2,940	4,370	4,626	4,776	4,870
	Demand Totals	4,325	4,475	4,626	4,776	4,917
	Difference	(1,385)	(105)	0	0	(47)
Fifth Year	Supply Totals	2,940	4,370	4,626	4,776	4,870
	Demand Totals	4,325	4,475	4,626	4,776	4,917
	Difference	(1,385)	(105)	0	0	(47)

NOTES:
1. Valley Water supply source: Based on historic cutbacks and Valley Water's 2019 Supply Master Plan, the City expects 20% cutbacks from Valley Water supplies in dry years 3, 4, and 5.
2. SFPUC supply source: Regional Water Supply Reliability 4-1-2021 Updated Drought Allocations Based on SFPUC 4-1-2021 Letter Tables G-2, H-2, I-2, J-2, and K-2 1st, 2nd, 3rd, 4th, and 5th dry year allocations. Milpitas's water supply from SFPUC is reduced in all dry year projections.
3. There are no cutbacks in recycled water and active conservation supplies expected in all dry year types.
4. One or more groundwater wells pumping at 1.2 mgd will be developed for use in all dry year types as supply augmentation to reduce shortfall. Assume 3 wells online by 2030 and 4 wells by 2035. Assume groundwater well supplies will only be used as needed to offset shortfall.
5. Under shortfall conditions, it is assumed that water use reductions will be achieved by dry water year 2 and thereafter, and NOT in a single dry year or multiple dry year 1. This is outlined in the WSCP and Table 8-2.

The reduction measures for all levels of the City's WSCP are discussed in the WSCP (see Appendix I of this UWMP).

DWR requires that suppliers only use one scenario to input data into the Water Use Efficiency Data (WUE) portal. The City submitted Table 7-4, with Bay Delta Plan in the WUE portal to comply with the 2020 UWMP requirements and to be consistent with its supplier, SFPUC.

SFPUC Rate Impacts for Wholesale Customers During Water Shortages [41]

The SFPUC includes a variable component to water rates for most customer classes. As a result, as sales decrease, revenues are lost on a per unit basis. Because the marginal cost of water production is relatively small, as production is reduced, the cost of service remains the same. For both retail and wholesale customers, a reduction in water purchases – whether voluntary or mandated – would require the SFPUC to raise rates, cut costs, or use existing fund balance reserves to cover its expenses. The financial planning and rate-setting process is complex and iterative. While major impacts of a water shortage on rates are described below, the full process, especially for large water shortages, would incorporate significant stakeholder discussion about tradeoffs and financial impacts.

The SFPUC's current retail water rates have a provision for a "drought surcharge" that automatically increases adopted rates in the event of a declared water shortage. The drought surcharge is calculated so that, accounting for the expected reduction in retail water usage, total revenues are equal to what they would have been without the reduction. The drought surcharge protects the SFPUC's financial stability during water shortages, and provides customers an incentive to meet conservation targets.

For wholesale customers, the rate-setting process is governed by the terms of the WSA, which provides that, in the event of a water shortage emergency, the Commission may adjust wholesale rates in an expedited way concurrently with the imposition of drought surcharges on retail customers. Beyond drought rate setting and emergency rate setting, rates are set annually in coordination with the SFPUC annual budget process and are based on the forecasted wholesale share of regional water system expenditures and total purchases. If wholesale customer usage is expected to decrease – either voluntarily, or due to shortages – this would be incorporated into the wholesale rate forecast, and rates may increase.

7.2.6 Description of Management Tools and Options

According to Water Code Section 10620(f), urban water suppliers are required to describe management tools and options used that will maximize resources and minimize the need to import water from other regions.

BAWSCA agencies have long-term contracts with SFPUC to purchase water. The 26 BAWSCA agencies rely on SFPUC imported water as a significant source of high-quality potable water that is not pumped from groundwater basins or directly diverted from the Sacramento Bay Delta.[42] Several of the BAWSCA agencies (not including the City of Milpitas) do not have alternate water supplies and solely rely on SFPUC to supply water for their service area. Over the past decade, the City has taken significant demand management measures to reduce its water demand. The City's GPCD, 108 GPCD (Table 5-2), is evidence that the City's demand management tools are successful. The City continues to implement advanced technology and other measures to reduce demand on its SFPUC supply.

Below is a summary of the City's water management tools that are being implemented and planned to minimize the need for imported SFPUC water.

The City will have to work closely and continuously with its customers when implementing the Level 6 WSCP measures. Since extended emergency reductions of more than 50 percent are unprecedented and will be very difficult to sustain. Additional alternate supplies and measures may be necessary.

In recent years, the City has invested in modern technologies and implemented the following measures:

- The City may pursue a managed groundwater well extraction program similar to neighboring water agencies, Alameda County Water District to the north and City of Santa Clara and San Jose Water Company to the south. The south-western portion of the City of Milpitas overlays a groundwater aquifer

[41] SFPUC, 2020 UWMP Rate Impacts of Water Shortages Common Language, Final, March 4, 2021.

[42] SFPUC, 2020 UWMP.

which is adequately productive therefore, in-pipe blending with SFPUC and Valley Water is a viable option for augmenting supply shortages. Four wells at an average withdrawal rate of 1.2 million gallons per day (450 million gallons per year) can produce up to 5 million gallons per day of new water supply or the City. The extraction rate and volume is based on preliminary production tests of McCandless Well and Curtis Well which have indicated the aquifer in this zone produces 500-1,200 gallons per minute or an average of 850 gallons per minute. Prior to use, a State Water Quality Report must be completed, as well as treatment (if necessary) and disinfection. Assuming new wells would be of similar quality to that of Pinewood Well (the primary municipal well for Milpitas' emergency water supply), treatment for contaminants would be minimal. Issues to be resolved include both mineral and odor concerns which will require treatment or in-pipe blending with current water supplies. Planning for future wells, while an increase to the infrastructure costs, allows for better long-term supply reliability by expanding the City's water supply portfolio which will allow the City to supplement water supply cutbacks in some or all drought scenarios. Wells also provide the City storage credits to offset above grade water storage requirements which also include infrastructure and land acquisition costs.

Sustainability of wells and groundwater aquifers are based on aquifer recharge, as currently performed by Valley Water. The City, in concert with Valley Water, should study the feasibility of offsetting SFPUC supply reductions, as outlined in the Bay Delta Plan and this UWMP, to determine the approximate quantity of groundwater and the rate at which groundwater can be extracted from the aquifer during various drought scenarios. If it is determined the aquifer has the capacity to offset most if not all of the supply cutbacks from SFPUC, the City should develop a Water Supply Augmentation Feasibility Report to determine the recommended number and location of wells.

The table below provides a preliminary estimate of the number of wells which would be required to offset all of the SFPUC supply cutbacks with the assumption that each well will produce approximately 850 gallons per minute and Valley Water determines no adverse impacts will be realized as a result of extracting groundwater at the rate and volume identified above.

Table 7-5. Groundwater Wells Required to Supplement Multiple Dry Years Supply

Proposed Number of Groundwater Wells for Consecutive Dry Year Supply Augmentation					
	2025	2030	2035	2040	2045 (Opt)
First Dry Year	2	2	2	2	3
Second Dry Year	2	3	3	3	3
Third Dry Year	3	3	3	3	4
Fourth Dry Year	3	3	3	4	4
Fifth Dry Year	3	3	4	4	4
NOTES: The number of wells needed to augment multiple dry year supply without cutbacks based on well capacity of 1.2 mgd.					

- By 2022, 100% of Advanced Metering Infrastructure (AMI) meters will be installed in the City's service area for near real-time metering of water use. In the past 2 years, the City has invested $14M in this advanced technology to:
    - Continuously track all meters and water use,
    - Engage with customers about their water use and identify potential leaks through an email and text alert 'ping' within hours, rather than through a bi-monthly bill with potentially abnormally high consumption and cost to customers,

    - provide almost real-time water consumption data for its customers through the City's AMI customer portal,
- Investment in modern technologies: Supervisory Control and Data Acquisition (SCADA) for:
    - Pressure zone management
    - Spatial identification of maintenance areas for improved visibility of service areas requiring a higher level of maintenance
    - Spatial identification of line breaks and break frequency to prioritize line replacement
    - Spatial identification of abnormally high water use to prioritize leak investigations and/or identify areas for water conservation measures
- Evaluate, assess and implement Ordinances that target water efficiency:
    - Prohibition on water waste
- Geographic Information Systems (GIS), is being used for system mapping.
- Increased implementation of demand management measures.
- Coordinate the use of additional recycled water
- Coordinate with other water agencies to share regional water resources.

BAWSCA Water Conservation Programs

BAWSCA implements two programs intended to promote water efficiency: (1) the Core program and (2) the Subscription Program, as discussed below.[43]

The Core Program is funded through the annual BAWSCA budget and contains those conservation measures that benefit from regional implementation and that provide regional benefits, irrespective of individual agency jurisdictions. The Subscription Program is fully funded by the individual agency that elects to participate in the program. The extent of funding is based on agency participation level and includes conservation measures whose benefits can be realized in individual water agency service areas.

Valley Water Demand Management Reduced Delta Reliance Requirement

Valley Water Standard Text

Valley Water, with the support of all retailers including the City has made significant investments in demand management and local supplies to reduce Santa Clara County's and thus the City's reliance on the Delta. These investments include:

- Conservation measures
- Recycled water
- Stormwater capture
- Dam Improvements/Seismic Retrofits of local reservoirs

Through careful management and conjunctive use of local surface water and groundwater supplies, and increasing conservation and use of recycled water, Santa Clara County (and by extension XX retailer) is reducing reliance on the Delta.

[43] BAWSCA Annual Conservation Program Report for FY 2018-19. https://bawsca.org/uploads/pdf/BAWSCA_Annual_Conservation_Programs_Report_FY2018-19_FINAL.pdf

7.3 Drought Risk Assessment (DRA)

The DRA is new in the 2020 UWMP requires that every urban water supplier includes a drought risk assessment for its water service and develops demand management measures (DMMs) and water supply projects and programs [Water Code Section 10635(b)].

The Water Code Section 10635(b) permits urban water suppliers to conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. This allows Suppliers to modify the DRA as more information becomes available, supplies or uses change, and in the event of unforeseen circumstances.

This new provision of the Water Code directs Suppliers to prepare a DRA and requires that the DRA includes a description of the following:

- Data and methods used
- Basis for the supply shortage conditions
- Determination of the reliability of each source
- Comparison of total water supplies and uses during the drought

In accordance with Water Code Section 10612, the DRA evaluation is based on the five driest consecutive years on record. However, Water Code Section 10635 also requires that the analysis includes plausible changes in climate, regulations, and other locally applicable criteria.

For the DRA, the SFPUC derived the five-year consecutive drought based on the driest five-year sequence in the hydrologic record and provided two scenarios for BAWSCA agencies to choose from. The supply conditions provided by SFPUC satisfy the Water Code requirements. SFPUC has provided information about the likelihood of this severe condition in their UWMP. The historic five driest consecutive years on record provided by SFPUC are required to be presented as if they occur over the next five years, 2021 through 2025 in the DRA. They are analyzed in this Section.

DWR requires suppliers to use the new Table 7-5 to demonstrate water supply reliability during the long-term drought. In Table 7-5, the Drought Risk Assessment (DRA), DWR requests suppliers to provide their five-year drought Risk Assessment (five-year drought sequence, supply and demand for comparison), from 2021 through 2025, including planned Water Shortage Contingency Plan (WSCP) Actions, to address Water Code Section 10635(b).

In Table 7-5, the DRA, the City includes its supply reliability using SFPUC scenario with Bay Delta Plan . The SFPUC projects that in multiple dry years, with the Bay Delta Plan, the wholesale volume available will range from 86 percent of normal in the first year, 72 percent in the second year, and starting the third year to fifth year 40 percent of normal (Data Sources: SFPUC: Regional Water Supply Reliability, Table 3).[44] The SFPUC's projections for available supplies for wholesale agencies translate to significant cutback allocations for all BAWSCA agencies (BAWSCA Attachment B: Updated 2020 UWMP Drought Cutbacks, Tables C, D, 3/1/2021).

The City will experience significant water supply shortfalls with the Bay Delta Plan, for multiple (five) dry years. These shortfalls will invoke the City's WSCP in the second year (2022) through fifth year (2025) of a multi-year drought. To reduce the need for continued extreme use reductions, the City will need to accelerate seeking additional water supplies, including recycled water.

Water Shortage Contingency Plan (WSCP) Actions, to address Water Code Section 10635(b)

To achieve reductions of SFPUC supply during shortages, the City with invoke all elements of WSCP Level 5. The City's measures could include, but not be limited to the following:

- Extremely restricted water supplies

[44] SFPUC: January 22, 2021, Regional Water Supply Reliability, Table 3.

- Mandatory reductions on indoor water uses
- Per Capita allocations for indoor use for health and safety
- Prioritize water use for essential domestic sanitation and other critical needs
- No irrigation with domestic water permitted
- No outdoor domestic water use, except for fire-fighting and critical needs
- Increase water shortage emergency rates using the City's Ordinance 112, Attachment 103A, Schedule of Rates and Fees with Ordinances 111 and 113
- Strict enforcement of waste prohibitions

During the 2014 through 2017 drought, the City sustained more than 20 percent reductions. The City invoked multiple water reduction measures, including continued public notifications, rebates for water -efficient fixtures and turf removal, indoor and outdoor water use restrictions. However, staff could not identify specific savings from specific measures. Clearly outdoor water use restrictions contributed significantly to water use reductions. Additionally, since the City has invested in AMI technology, it will have almost real-time consumption data that can help with water use monitoring and pressure zone management for water use reductions.

The key means by which the City will be able to sustain more than 40 percent reductions, for extended periods of time, without additional supplies, will require severe restrictions of potable use outdoors and lowering its water losses. For prolonged reductions of 40-50%, the City could achieve approximately 41 percent reductions. Using its 2020 domestic water production and wastewater discharge data:

- The City's production: 3,430 MG/year
- Wastewater to SVCW: 2,032 MG/year
- Non-sewered use including Irrigation water = Production (3,430) – [wastewater (2,032)+ water loss (39)] = 1,359 MG/year

Therefore, non-sewered use in 2020 was approximately 1,359 MG/year in 2020 or almost 40% of the City's 2020 water demand. Although savings of 41 percent from non-sewered are unlikely, the potential for the highest potable water savings are from outdoor and other non-potable uses.

These cutbacks follow the Water Supply Agreement (WSA) and are contractually within SFPUC's planned Level of Service, limiting supply cutbacks to less than 20 percent for its wholesale customers. During a five-year drought, shortages of water supply result for the City service area.

DWR requires that suppliers only use one scenario to input data into the Water Use Efficiency Data (WUE) portal.

The City submitted Table 7-6 (DWR Submittal Table 7-5), with Bay Delta Plan in the WUE portal to be in compliance with the 2020 UWMP requirements and to be consistent with its supplier, SFPUC. The City's DRA may be revised outside of its 2020 UWMP.

Table 7-6. Five-year Drought Risk Assessment to Address Water Code Section 10635(b) – With Bay Delta Plan

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	3,710
Total Supplies	3,592
Surplus/Shortfall w/o WSCP Action	(118)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	-118
Resulting % Use Reduction from WSCP action	0%

2022	**Total**
Total Water Use	3,860
Total Supplies	3,512
Surplus/Shortfall w/o WSCP Action	(348)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	348
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	9%

2023	**Total**
Total Water Use	4,010
Total Supplies	2,468
Surplus/Shortfall w/o WSCP Action	(1,542)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,542
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	38%

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2024	**Total**
Total Water Use	4,170
Total Supplies	2,566
Surplus/Shortfall w/o WSCP Action	(1,604)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,604
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	38%

2025	**Total**
Total Water Use	4,325
Total Supplies	2,660
Surplus/Shortfall w/o WSCP Action	(1,665)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	1,665
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	39%

NOTES:
1. Valley Water supply source: Based on historic cutbacks and Valley Water's 2019 Supply Master Plan, the City expects 20% cutbacks from Valley Water supplies in dry years 3, 4, and 5.
2. SFPUC supply source: Regional Water Supply Reliability 4-1-2021 Updated Drought Allocations Based on SFPUC 4-1-2021 Letter Tables G-2, H-2, I-2, J-2, and K-2 1st, 2nd, 3rd, 4th, and 5th dry year allocations. Milpitas's water supply from SFPUC is reduced in all dry year projections.
3. There are no cutbacks expected in dry years for recycled water and active conservation supplies.
4. One or more groundwater wells pumping at 1.2 mgd will be developed for use in all dry year types as supply augmentation to reduce shortfall. Assume 3 wells online by 2030 and 4 wells by 2035. So, this future dry year supply is not applicable to this table.
5. Under shortfall conditions, it is assumed that water use reductions will be achieved by dry water year 2 and thereafter, and NOT in a single dry year or multiple dry year 1. This is outlined in the WSCP and Table 8-2.

7.3.1 Data, Methods, and Basis for Water Shortage Condition

DWR requires that suppliers provide a description of the data used for the DRA. Although the SFPUC and BAWSCA data are described earlier in this chapter, and because the DRA can be updated separately from the UWMP five-year plan cycle, DWR requires a description of the data in the DRA.

In its DRA, the City includes information and the tables about the SFPUC and BAWSCA source(s) of data. The SFPUC has developed hydrologic models based on the DWR-required scenarios for a multi-year drought. All documentation received from the SFPUC and BAWSCA for decisions to determine supply shortage conditions, used for the City DRA is provided in Appendix K. Details about SFPUC's RWS models are included in SFPUC's Draft 2020 UWMP. [45]

All the Scenario 1 tables presented earlier in this chapter assume full implementation by the SFPUC of the Bay Delta Plan Amendment beginning in 2023. All BAWSCA tables assume that the wholesale customers may purchase up to 184 mgd from the RWS through 2045. When 184 mgd, 100 percent of SFPUC's water supply is available to the wholesale customers, 100 percent of the City's ISG is available to the City, 9.232 mgd per year. Assumptions about the status of the dry-year water supply projects included in SFPUC's Water System Improvement Program (WSIP) are provided in the table 'WSIP Project Assumptions'.[46] The tables reflect instream flow requirements at San Mateo and Alameda Creeks.

7.3.2 DRA Individual Water Source Reliability

DWR requires suppliers to include an assessment of the reliability of each water source over the five-consecutive-year drought under a variety of water shortage conditions in the DRA. In contrast, the water service reliability assessment only requires an assessment of total water supply.

In its DRA, the City presents the potential challenges to its normal year supplies. Unlike the previous drought cutbacks, if the Bay Delta Plan is implemented, as SFPUC presents it in its extreme supply reductions, using Scenario 1, during multi-year droughts, severe cutbacks from the normal wholesale supply are projected to result. SFPUC projects reductions in their wholesale supply of up to 60 percent. The RWS-wide supply reductions translate to the most severe cutbacks during multi-year droughts for the City, of more than 50 percent.

The cutback values presented in this chapter are uncertain and could change, therefore users and readers of the City's 2020 UWMP are cautioned to contact the City to obtain updated information prior to making decisions based on water supply and demand values in this plan.

The regulatory conditions and negotiations about the Bay Delta Plan are continually evolving, therefore conditions could change from those documented in SFPUC's and the City's 2020 UWMPs. The SFPUC's two scenarios present contrasting results. Based on the current negotiations between SFPUC and the State Water Board, as well as other stakeholders, neither of the two scenarios appears to be final.

With this uncertainty, the City may consider an update to its DRA (see Section 7.3) prior to the 2025 UWMP update if significant new information becomes available. The Water Code Section 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.

The City will have to work closely with BAWSCA and continuously with its customers when implementing Levels 5 and 6 WSCP measures. Since extended emergency reductions of more than 50 percent are unprecedented and will be very difficult to sustain. Even implementation of the strongest mitigation measures in Level 6 of the City's 2020 WSCP, will likely require augmentation with alternate water supplies.

[45] SFPUC. (2021). Draft 2020 UWMP.

[46] SFPUC Regional Water System supply reliability letter from SFPUC, Table 1 , January 22, 2021.

Separate Potable and Non-Potable. The City does not have a non-potable source of water; therefore, its DRA is for its SFPUC and Valley Water potable water supply.

Monthly or Other Time-Step. DWR recommends that suppliers conduct their DRA on a time-step that best illuminates water supply and use constraints that may affect water shortage conditions. For its DRA, the City uses an annual ”time-step” for its DRA, because the City’s SFPUC supply is based on an annual allocation, rather than a monthly allocation. Due to the Mediterranean climate in the City’s service area, variability in seasonal temperatures and rainfall are normal, therefore monthly variability in water use is typical for the service area.

Instructions for Using the Optional Planning Tool

The City is not using the Optional Planning Tool DRA Worksheet for reasons already stated.

8 WATER SHORTAGE CONTINGENCY PLAN

Layperson Description

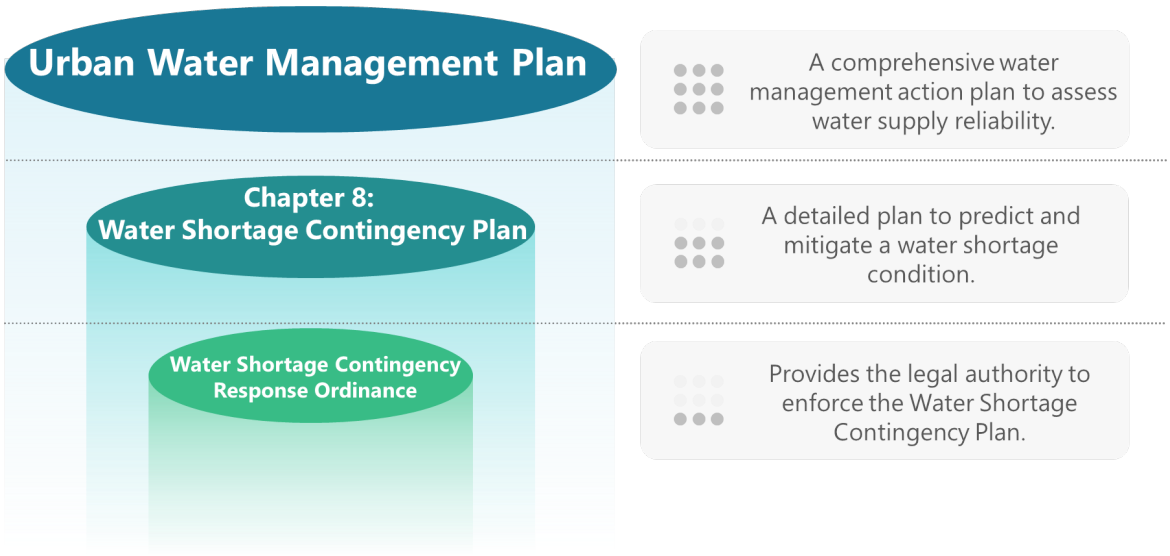
Water shortage contingency planning is a strategic planning process in which the City of Milpitas engages to prepare for and respond to water shortages. A water shortage, when water supply available is insufficient to meet the normally expected customer water use at a given point in time, may occur due to a number of reasons, such as water supply quality changes, climate change, drought, and catastrophic events (e.g., earthquake). The City's WSCP provides real-time water supply availability assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation will help maintain reliable supplies and reduce the impacts of supply interruptions.

The California Water Code (CWC) Section 10632 requires every urban water supplier that serves more than 3,000 acre-feet per year or has more than 3,000 connections to prepare and adopt a standalone Water Shortage Contingency Plan as part of its urban water management plan. The WSCP is required to plan for a greater than 50% supply shortage. This WSCP is due to be updated, based on new requirements, every five years and will be adopted as a current update for submission to the California Department of Water Resources by July 1, 2021.

8.1 Overview of the WSCP

The WSCP serves as the operating manual that the City will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. The WSCP contains documented processes and procedures, which are given legal authority through the Water Shortage Contingency Response Ordinance. This way, when shortage conditions arise, the City's governing body, its staff, and the public can easily identify and efficiently implement pre-determined steps to mitigate a water shortage to the level appropriate for the degree of water shortfall anticipated. Figure 8.1 illustrates the interdependent relationship between the three procedural documents related to planning for and responding to water shortages.

Figure 8-1. Water Shortage Contingency Plan Flow of Information



A copy of the City's Water Shortage Contingency Plan is provided in Appendix I. It includes the steps to assess if a water shortage is occurring, and what level of shortage drought actions to trigger the best response as appropriate to the water shortage conditions. The WSCP has prescriptive elements, including an analysis of water supply reliability; the drought shortage actions for each of the six standard water shortage levels that correspond to water shortage percentages ranging from 10 percent to greater than 50 percent; an estimate of potential to close supply gap for each measure; protocols and procedures to communicate identified actions for any current or predicted water shortage conditions; procedures for an annual water supply and demand assessment; monitoring and reporting requirements to determine customer compliance; and reevaluation and improvement procedures for evaluating the WSCP.

8.2 Summary of Water Shortage Response Strategy and Required DWR Tables

This WSCP is organized into three main sections with Section 3 aligned with the California Water Code Section 16032 requirements. In addition to the WSCP, Section 6.2 of this UWMP has further details on the City's water supply systems.

Section 1 Introduction and WSCP Overview gives an overview of the WSCP fundamentals.

Section 2 Background provides information on the City's water service area.

Section 3.1 Water Supply Reliability Analysis provides a summary of the water supply analysis and water reliability findings from the 2020 UWMP.

Section 3.2 Annual Water Supply and Demand Assessment Procedures provide a description of procedures to conduct and approve the Annual Assessment.

Section 3.3 Six Standard Water Shortage Levels explains the WSCP's six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, 50, and more than 50 percent shortages.

Section 3.4 Shortage Response Actions describes the WSCP's shortage response actions that align with the defined shortage levels.

Section 3.5 Communication Protocols addresses communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding any current or predicted shortages and any resulting shortage response actions.

Section 3.6 Compliance and Enforcement describes customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions.

Section 3.7 Legal Authorities is a description of the legal authorities that enable the City to implement and enforce its shortage response actions

Section 3.8 Financial Consequences of the WSCP provides a description of the financial consequences of and responses for drought conditions.

Section 3.9 Monitoring and Reporting describes 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**.**

Section 3.10 WSCP Refinement Procedures addresses reevaluation and improvement procedures for monitoring and evaluating the functionality of the WSCP.

Section 3.11 Special Water Feature Distinction.

Section 3.12 Plan Adoption, Submittal, and Implementation provides a record of the process the City followed to adopt and implement its WSCP.

The WSCP is based on adequate details of demand reduction and supply augmentation measures that are structured to match varying degrees of shortage will ensure the relevant stakeholders understand what to

expect during a water shortage situation. The City has documented the minimum supply over the next 5 years (Table 8-4) and adopted water shortage levels consistent with the requirements identified in Water Code Section 10632 (a)(3)(A) (Table 8-1).

The supply augmentation actions that align with each shortage level are described in Table 8-3. These augmentations represent short-term management objectives triggered by the WSCP and do not overlap with the long-term new water supply development or supply reliability enhancement projects.

The demand reduction measures that align with each shortage level are described in Table 8-2. This table also estimates the extent to which that action will reduce the gap between supplies and demands to demonstrate that the chosen suite of shortage response actions can be expected to deliver the expected outcomes necessary to meet the requirements of a given shortage level.

The following tables will be updated after final WSCP adoption. See Appendix I.

Table 8-1. Water Shortage Contingency Plan Levels

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	Percent Shortage Range[1] *Numerical value as a percent*	Water Shortage Condition (*Narrative description)*
0	0% (Normal)	A Level 0 Water Supply Shortage –Condition exists when the City notifies its water users that no supply reductions are anticipated in this year. City proceeds with planned water efficiency best practices to support consumer demand reduction in line with state mandated requirements and local City goals for water supply reliability. Permanent water waste prohibitions are in place as stipulated in the City's Water Shortage Response Ordinance.
1	Up to 10%	A Level 1 Water Supply Shortage – Condition exists when the City notifies its water users that due to drought or other supply reductions, a consumer demand reduction of up to 10% is necessary to make more efficient use of water and respond to existing water conditions. The City shall implement the mandatory Level 1 conservation measures identified in this WSCP. The type of event that may prompt the City to declare a Level 1 Water Supply Shortage may include, among other factors, a finding that its wholesale water provider calls for extraordinary water conservation.
2	11% to 20%	A Level 2 Water Supply Shortage – Condition exists when the City notifies its water users that due to drought or other supply reductions, a consumer demand reduction of up to 20% is necessary to make more efficient use of water and respond to existing water conditions. Upon declaration of a Level 2 Water Supply Shortage condition, the City shall implement the mandatory Level 2 conservation measures identified in this WSCP.
3	21% to 30%	A Level 3 Water Supply Shortage – Condition exists when the City declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that up to 30% consumer demand reduction is required to ensure sufficient supplies for human consumption, sanitation and fire protection. The City must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350.

Submittal Table 8-1 **Water Shortage Contingency Plan Levels**		
Shortage Level	Percent Shortage Range[1] *Numerical value as a percent*	Water Shortage Condition (*Narrative description)*
4	31% to 40%	A Level 4 Water Supply Shortage - Condition exists when the City declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that up to 40% consumer demand reduction is required to ensure sufficient supplies for human consumption, sanitation and fire protection. The City must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350.
5	41% to 50%	A Level 5 Water Supply Shortage - Condition exists when the City declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that up to 50% or more consumer demand reduction is required to ensure sufficient supplies for human consumption, sanitation and fire protection. The City must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350.
6	>50%	A Level 6 Water Supply Shortage – Condition exists when the City declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that greater than 50% or more consumer demand reduction is required to ensure sufficient supplies for human consumption, sanitation and fire protection. The City must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in California Water Code section 350.
[1] One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		

Table 8-2. Demand Reduction Actions

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
0	Other water feature or swimming pool restriction	Statewide Prohibition is Required	Cleaning, filling, or operating water features, such as decorative fountains, except where the water is part of a recirculating system.	No
0	Other	Statewide Prohibition is Required	Washing or hosing down vehicles is prohibited except by use of a hand held container, hose with an automatic shut off device, or at a commercial car wash.	No
0	Other - Prohibit use of potable water for washing hard surfaces	Statewide Prohibition is Required	Washing hard or paved surfaces is prohibited except to alleviate safety or sanitary hazards using a hand held container, hose with an automatic shut off device, or a low-volume high pressure cleaning machine that recycles used water.	No
0	Landscape - Restrict or prohibit runoff from landscape irrigation	Statewide Prohibition is Required	Watering vegetated areas in a manner that causes excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter, or ditch is prohibited.	No
0	Landscape - Other landscape restriction or prohibition	Statewide Prohibition is Required	Irrigating ornamental turf on public street medians is prohibited.	No
0	Landscape - Other landscape restriction or prohibition	Statewide Prohibition is Required	No landscape watering shall occur within 48 hours after measurable precipitation.	No
0	Landscape - Other landscape restriction or prohibition	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Prohibited use of broken or defective plumbing, sprinkler, watering or irrigation systems	No

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
0	Landscape - Other landscape restriction or prohibition	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Prohibited use of potable water for outdoor irrigation in newly constructed homes and buildings, except with drip or microspray irrigation systems.	No
0	CII - Restaurants may only serve water upon request	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	CII - Restaurants may only serve water upon request	No
0	CII - Other CII restriction or prohibition	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	No water in new, added or altered cooling system equipment unless at least fifty percent (50%) of the water is recycled.	No
0	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	All new commercial car wash and laundry facilities must re-circulate the wash water.	No

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
0	Landscape - Limit landscape irrigation to specific times	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Watering or irrigation of vegetated areas is prohibited between 9 am and 6 pm except by use of a hand held device, hose equipped with an automatic shutoff device, or for adjusting or repairing an irrigation system for short periods of time.	No
0	Other - Require automatic shut of hoses	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Use a shutoff nozzle on hoses.	No
0	Pools and Spas - Require covers for pools and spas	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Pools and spas shall be covered when not in use to prevent evaporation.	No
0	Other - Prohibit use of potable water for construction and dust control	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Require a construction water use plan be submitted to the water supplier that addresses how impacts to existing water users will be mitigated (such as dust control).	No

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
0	Landscape - Limit landscape irrigation to specific days	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings	Irrigation shall be limited to 4 days per week turf watering when using potable water.	No
0	Landscape - Other landscape restriction or prohibition	On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings	Prohibited use of potable water for outdoor irrigation in newly constructed homes and buildings, except with drip or microspray irrigation systems.	No
1	Landscape - Limit landscape irrigation to specific times	0-5%	Watering or irrigation of vegetated areas is prohibited between 9 am and 6 pm except by use of a hand held device, hose equipped with an automatic shutoff device, or for adjusting or repairing an irrigation system for short periods of time.	Yes
1	Landscape - Limit landscape irrigation to specific days	0-5%	Irrigation shall be limited to 4 days per week turf watering when using potable water.	Yes
1	Expand Public Information Campaign	0-1%	Community Outreach and Messaging (Expand Public Information Campaign)	Yes
1	Reduce System Water Loss	0-5%	Real Loss Reduction - Pressure Management and More Aggressive Leak Detection and Repair	Yes
1	Increase Water Waste Patrols	0-1%	Increase Water Waste Patrols	Yes
1	Expand Public Information Campaign	0-1%	Expand promotion and outreach about rebates available	No

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
2	Improve Customer Billing	0-1%	Improve AMI Leak Reports to include more details on water use	No
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Fix leaks or faulty sprinklers promptly/within 5 days.	Yes
2	Landscape - Other landscape restriction or prohibition	0-1%	Prohibited use of broken or defective plumbing, sprinkler, watering or irrigation systems.	Yes
2	Landscape - Limit landscape irrigation to specific days	5-10%	Irrigation shall be limited to 3 days per week turf watering when using potable water. Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	Yes
2	Water Features - Restrict water use for decorative water features, such as fountains	0-1%	Filling or refilling ornamental lakes and ponds is prohibited. Ornamental lakes and ponds that sustain aquatic life of significant value and were actively managed prior to the storage declaration are exempt.	Yes
2	Pools and Spas - Require covers for pools and spas	0-1%	Pools and Spas - Require covers for pools and spas	Yes
2	Decrease Line Flushing	0-1%	Decrease Line Flushing	Yes
2	CII - Restaurants may only serve water upon request	0-1%	CII - Restaurants may only serve water upon request	Yes
2	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	0-1%	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	Yes
3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Fix leaks or faulty sprinklers within 4 days.	Yes

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	0-1%	Car washing is only permitted using a commercial carwash that recirculates water or by high pressure/low volume wash systems.	Yes
3	Other - Prohibit use of potable water for construction and dust control	0-1%	Require a construction water use plan be submitted to the water supplier that addresses how impacts to existing water users will be mitigated (such as dust control).	Yes
3	Landscape - Limit landscape irrigation to specific days	10-25%	Irrigation shall be limited to 2 days per week turf watering when using potable water. Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	Yes
3	Other water feature or swimming pool restriction	0-1%	Decorative water features that use potable water must be drained and kept dry.	Yes
3	CII - Other CII restriction or prohibition	0-1%	No water in new, added or altered cooling system equipment unless at least fifty percent (50%) of the water is recycled.	Yes
4	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Fix leaks or faulty sprinklers within 3 days.	Yes
4	Landscape - Limit landscape irrigation to specific days	5-20%	Irrigation shall be limited to 1 days per week turf watering when using potable water. Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	Yes
4	Other water feature or swimming pool restriction	0-1%	Existing pools shall not be emptied and refilled using potable water unless required for public health and safety purposes.	Yes

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
4	Other water feature or swimming pool restriction	0-1%	No new permits for pools will be issued.	Yes
4	Landscape - Prohibit certain types of landscape irrigation	0-1%	Irrigation of golf courses only allowed for greens and tees area.	Yes
5	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Fix leaks or faulty sprinklers within 2 days.	Yes
5	Landscape - Prohibit all landscape irrigation	5-20%	All irrigation is prohibited.	Yes
5	Landscape - Prohibit certain types of landscape irrigation	0-1%	Watering of all golf course areas is prohibited.	Yes
5	Landscape - Prohibit certain types of landscape irrigation	0-1%	Watering of parks, school grounds, and recreation fields is prohibited, except for rare plant or animal species.	Yes
6	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0-1%	Fix leaks or faulty sprinklers within 1 day.	Yes
6	Other	0-50%	Water use for public health and safety purposes only.	Yes
6	Landscape - Prohibit all landscape irrigation	0-5%	The City may shut off all non-essential water services. All irrigation is prohibited.	Yes
6	CII - Other CII restriction or prohibition	0-15%	Water for commercial, manufacturing, or processing purposes shall be reduced in volume by up to 50% or exceeded if necessary for public health and safety purposes.	Yes
6	Other	0-70%	Water use for public health and safety purposes only. Customer rationing may be implemented.	Yes

Table 8-3. Supply Augmentation and Other Actions

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? *Include volume units used.*	Additional Explanation or Reference *(optional)*
1	Other Actions (describe)	0-10%	Install 5 additional City owned groundwater wells by 2025 and 2 additional groundwater wells by 2040 with a capacity of 1.2 mgd each per West Yost April 2021 Shortage Evaluation
2	Other Actions (describe)	10-20%	Install 5 additional City owned groundwater wells by 2025 and 2 additional groundwater wells by 2040 with a capacity of 1.2 mgd each per West Yost April 2021 Shortage Evaluation
3	Other Actions (describe)	20-30%	Install 5 additional City owned groundwater wells by 2025 and 2 additional groundwater wells by 2040 with a capacity of 1.2 mgd each per West Yost April 2021 Shortage Evaluation
4	Other Actions (describe)	37%	Install 5 additional City owned groundwater wells by 2025 and 2 additional groundwater wells by 2040 with a capacity of 1.2 mgd each per West Yost April 2021 Shortage Evaluation
5	Other Actions (describe)	37%	Install 5 additional City owned groundwater wells by 2025 and 2 additional groundwater wells by 2040 with a capacity of 1.2 mgd each per West Yost April 2021 Shortage Evaluation
6	Other Actions (describe)	37%	Install 5 additional City owned groundwater wells by 2025 and 2 additional groundwater wells by 2040 with a capacity of 1.2 mgd each per West Yost April 2021 Shortage Evaluation

9 DEMAND MANAGEMENT MEASURES

Lay Description

This chapter communicates the City of Milpitas's efforts to promote conservation, reduce demand on water supplies and implement several demand management measures, including similar information from Valley Water, the City's wholesaler.

The City's conservation program is guided by a mix of agency and City policy directives and state and local water efficiency requirements that have evolved over time. On the state level, these shifted from meeting BMPs to the state per capita water reduction targets set by the Water Conservation Action of 2009 (SB X7-7) to new water efficiency targets mandates by AB 1668 and SB 606 that urban suppliers will need to meet starting in 2023 based on standards for efficient indoor, outdoor water use and supply side water loss. The City has been implementing conservation measures for decades. Through the City's efforts to promote conservation and educate its residents and retail customers on efficient and appropriate uses of water, the City was able to exceed its 2020 confirmed SB X7-7 target. As discussed in Chapter 5, the City's 2020 confirmed GPCD target was 146. However, its actual 2020 GPCD was 108, which was well below its state SB X7-7 per capita use target.

Although not a member of the California Water Efficiency Partnership (formerly CUWCC), the City submitted annual reports to the California Urban Water Conservation Council (CUWCC)'s in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California" (MOU) for the duration of its existence from 1991 to 2016, agreeing to voluntarily meet and report on conservation Best Management Practices (BMPs). During that time, the City implemented conservation measures in accordance with CUWCC BMP compliance goals and met requirements for biannual BMP reporting. In 2016, the CUWCC underwent an organizational transformation and decided to sunset in response to social, economic, environmental, regulatory and political conditions that changed substantially over its 25 years of existence, including passage of California's Water Conservation Act of 2009 mandating a 20 percent reduction in statewide urban per capita water use by 2020 followed by new state water conservation mandates (Executive Order B-37-16) and reporting requirements. In 2017, it relaunched as a new organization, the California Water Efficiency Partnership (CalWEP), dedicated to advancing water efficiency in the state through research, assistance, tools, and education but not through a MOU requiring member compliance with specific BMPs. Although the City is not a member of CalWEP, it continues to implement numerous Demand Management Measures (DMM) in the form of conservation programs, most of which builds from and meet the goals of the last iteration of the CUWCC's foundational and programmatic BMPs.

In addition, the City participates in all rebates and offers that are available from Valley Water including cost-sharing on the landscape rebate program, which allows residential customer to receive higher rebate amounts. Due to this participation with Valley Water, the City does not participate in any BAWSCA rebate programs. However, the City does work with BAWSCA to hold Landscape Workshops (usually four each period).

Valley Water Standard Text

Valley Water has made significant investments to manage demands for water, and water savings from conservation and stormwater capture were about 74,200 acre-feet per year (AFY) in 2020. Valley Water's Water Supply Master Plan 2040 establishes the target to increase these savings to 99,000 AFY by 2030 and to 110,000 AFY by 2040.

Valley Water develops water supplies and infrastructure to meet the County's water needs and achieve Valley Water Board's Ends Policies for water supply reliability, water conservation, and water recycling. These policies, in conjunction with Valley Water's Water Supply Master Plan 2040, establish broad water supply objectives:

- There is a reliable, clean water supply for current and future generations.
- Water supplies meet at least 100 percent (%) of average annual water demands in non-drought years and water use reductions greater than 20% are not called for during drought years.

9.1 Demand Management Measures for Retail Suppliers

The goal of the Demand Management Measures (DMM) section is to provide a comprehensive description of the water conservation programs that a supplier has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets.

9.1.1 Water Waste Prevention Ordinances

The City's water waste prevention ordinance is in place and prohibitions are included in response to shortages. The water waste prevention ordinance which is currently in effect reflects permanent restrictions. (Ordinance 240.6 can be found in the City's WSCP; see Appendix I of this UWMP.) The City is in the process of drafting an updated water shortage ordinance that will reflect the response actions outlined in the City's 2020 Water Shortage Contingency Plan.

9.1.2 Metering

The City maintains water use information for residential, commercial, industrial, institutional/governmental, and irrigation (potable and recycled) water users. All customer accounts are metered. Table 4-1 gives actual water deliveries for 2020. By 2022, 100% of Advanced Metering Infrastructure (AMI) meters will be installed in the City's service area for near real-time metering of water use.

9.1.3 Conservation Pricing

The City water rate structure is consistent with a recent consultant report and current ordinance. The uniform rates for the quantity charges are billed bimonthly and imposed per hundred cubic feet for metered water service. The rates and the effective dates for the bimonthly water meter charges, are determined on the basis of the size of the water meter. The rates and effective dates for the bimonthly fire service charges, determined on the basis of the size of the fire service. Current rates can be found in the City Ordinance.[47]

[47] Ord. No. 120.48, § 2, 2/19/19
https://library.municode.com/ca/milpitas/codes/code_of_ordinances?nodeId=TITVIIIPUWO_CH1WASY_S6WASECH_VIII-1-6.13QUCH

9.1.4 Public Education and Outreach

The City conducts its conservation program in conjunction with resources provided by Valley Water and BAWSCA. Programs implemented through the partnerships with these agencies may include free showerheads and aerators, the Irrigation Hardware Upgrades Rebate Program, Landscape Conversion Rebate Program, Rainwater Capture Program, Graywater Laundry to Landscape Rebates and Water Wise House Calls and Water Efficient Gardening workshops. The City contributes to these programs indirectly through wholesale water costs and wastewater treatment purchases. The City cost-shares with Valley Water on the Landscape Rebate program which includes the conversion and rainwater harvesting rebates. The City also distributes educational information to schools, various fairs and other public events. Conservation-related workshops and opportunities are also posted on the City's website as well as drought information.

9.1.5 Programs to Assess and Manage Distribution System Real Loss

City maintenance crews investigate and repair water leaks, the majority of which occur in service laterals. Long-term plans to reduce water loss include the following:

- Replace existing meters with smart meters
- Implement supervisory control and data acquisition system
- Replace selected water pipe with upgraded design criteria to withstand seismic events
- Maintain an active cathodic protection system

9.1.6 Water Conservation Program Coordination and Staffing Support

As part of the City's response to the drought, the City established a Water Conservation Program. The program was structured to facilitate and respond to reports of water waste and violations of local water use restrictions. It also provides an opportunity to educate home and business owners on water conservation. To facilitate the community's ability to report water waste, various reporting options were developed including email, a water–waste hotline, the City's website and through a mobile application. The Water Conservation Coordinator is:

Linda Grand
1265 N. Milpitas Blvd
Milpitas, CA 95035
408- 586-2619
lgrand@ci.milpitas.ca.gov

9.2 Implementation over the Past Five Years

The following water demand management measures have been implemented to achieve water use targets. The City communicates these programs to all Milpitas residents through newsletter distribution, local advertisements, and City media.

Water Survey Programs for Single Family and Multiple-Family Residential Customers

Valley Water developed this program to target and market home water-use surveys to single-family and multi-family residential customers of participating water retailers including the City of Milpitas. The water surveys consist of educating customers on how to read their water meter; checking flow rates of showerheads, faucet aerators and toilets; checking for leaks; installing low-flow showerheads, aerators, and/or toilet flappers if necessary; checking irrigation system efficiency; measuring landscaped area; developing an efficient irrigation schedule for the different seasons; and providing customers with evaluation results, water savings recommendations, and other education materials. Recently the program was enhanced for increased program efficiency and participation by using landscape measurements, from this program as an initial qualifying step for the Landscape Rebate program.

Residential Plumbing Retrofit

Valley Water has provided free low-flow showerheads and faucet aerators to Santa Clara County residents via its water retailers, residential water surveys, and public events. City staff offers these free water-saving devices to Milpitas residents via distribution at city-sponsored events, City media, and residential newsletters. In addition to the showerheads and aerators directly distributed by Valley Water, the City has distributed thousands of low-flow showerheads and aerators. The City also offers Water Conservation Kits that include a low-flow showerhead, aerators and a hose nozzle.

Residential Ultra-Low Flush Toilet (ULFT) Replacement Programs

Effective 1992, Valley Water offered various residential ULFT replacement programs for single-family and multi-family residences, in conjunction with 13 participating water retailers. In 2004, Valley Water shifted to a high-efficiency toilet (HET) program, which offered a rebate of $125. In response to California's new requirement, Valley Water implemented its strictest standard for HETs, in 2014. Only Premium HETs would qualify for the $125 rebate for the remainder of the program's lifespan. The program was phased out in 2016 to reprioritize funds to other programs with greater opportunities for water savings.

System Water Surveys, Leak Detection and Repair

All connections within the City are metered, except for some City maintenance activities such as street sweeping, fireflow testing, and sewer hydro/vac truck filling. To minimize leaks from residential, business, and irrigation connections, City maintenance crews replace all leaking meters, repair water service and main leaks, and calibrate compound or multi-head meters annually. The City will continue to conduct its meter calibration and replacement program.

This 2020 UWMP includes water loss audit distribution system losses for the past 5 years (see Section 4.2.4). The City has a small and a large meter testing program to better understand meter accuracy. In addition, the City is in the process of drafting a system-wide Water Loss Control Plan to identify future actions that can be taken to further reduce water loss.

Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

All water connections in the City are metered, and separate irrigation meters are required for non-residential customers and new large-scale multi-family developments. Commercial, industrial, and institutional customers are required to have fire sprinkler systems with separate meters. The City has also installed separate meters for recycled water services. Rebates for the installation of submeters as well as switching from a mixed-use meter to a dedicated landscape meter are offered through Valley Water. The submeter program provides $150 per submeter installed at multi-family housing complexes. Valley Water plans to continue to offer this program in the future to reach the region's long-term water conservation goals.
The City will continue to install and read meters for all new services.

Landscape Rebate Program Conversion & Rainwater Harvesting Rebates

Valley Water began to focus on water efficient landscapes by launching a program in early 2005. The original program offered rebates to residential and commercial sites for the replacement of approved high water using landscape with low water use plants, mulch and permeable hardscape. Participants could receive up to $0.75 per square foot of irrigated turf grass with a maximum rebate of $1000 and $10,000 for residential and commercial sites respectively. In an effort to expedite program participation, the Valley Water Board approved doubling the maximum rebate from $1000 up to $2000 for residents and from $10,000 up to $20,000 for commercial sites in 2009. The rebate cap for commercial, institutional, and multi-family (5 or more units) sites was then increased to $50,000 on January 1, 2020.

Currently, Santa Clara County single family, multi-family and business properties with qualifying high water using landscape can receive rebates for converting to qualifying low water using landscape with a minimum of 50% qualifying plant coverage, 2 to 3 inches of mulch, and a conversion from overhead irrigation to drip/micro spray/bubbler or no irrigation. In January 2014, the Landscape Conversion rebate was increased from $.75 per

square foot to $1.00 per square foot. However, in April 2014, in direct response to the drought, the Valley Water Board approved additional funding to the program to support a rebate of $2.00 per square foot with no maximum rebate. On July 1, 2016, the rebate rate returned to $1/sq ft and the rebate caps were reinstituted. In January of 2019, Valley Water added Rainwater Capture Rebates to the Landscape Rebate Program. Customers now have the opportunity to receive rebates for the installation of rain barrels, cisterns, and rain gardens. Valley Water plans to continue to offer this rebate in the future in order to reach the region's long term water conservation goals. A cost-sharing agreement between the City and Valley Water increases the rainwater harvesting and landscape conversion rebate amounts for the City's residential customers.

Landscape Water Surveys

Valley Water has offered and provided large landscape water surveys. Landscape managers have been provided water-use analyses, scheduling information, in-depth irrigation evaluation, a site-specific water budget, and recommendations for affordable irrigation upgrades. Each site received a detailed report upon completion of the survey. Previously a stand-alone program, starting in 2015 the program was offered through the Landscape Water Use Evaluation Program. Participants from this program are encouraged to participate in the Landscape Rebate Program.

High-Efficiency Clothes Washers Rebate Program

Valley Water offered a residential high-efficiency washer rebate between July 1995 and December 2016. In October 2001, Valley Water began participating in the regional Bay Area Water Utility Clothes Washer Rebate Program, which has been successfully partnering with PG&E between January 2008 and December 2016. To address concerns for local water quality, washers that utilized silver-ion technology did not qualify for this program regardless of their efficiency. In mid-2014, a multi-tiered combined rebate was implemented to transition program participants to more stringent fixture standards:

- Purchasing Energy Star Most Efficient (ESME) washers resulted in the combined rebate increasing to $200 ($125 of which was from Valley Water).
- Purchasing the Consortium for Energy Efficiency's (CEE's) Tier 3 washers received a reduced Valley Water contribution of only $50 with the goal of promoting washers that qualify for the more efficient standard.

In January 2015, qualifying standards were adjusted to streamline requirements to only rebate for qualifying ESME washers at a combined rebate of $150 ($100 of which was from Valley Water) until the program ended on December 31, 2016. The program ended in response to the vast improvement of federal Energy Star program's efficiency standards over the years. By the end of the program, Valley Water's Water Conservation Savings Model estimated nearly 60% of all single-family homes had efficient clothes washers within its service area.

Public Information Programs

Valley Water operates an extensive public information program and associated school program, which provide materials, speakers, and outreach activities to the general public. Outreach activities include publications and website development, public meetings, participation at community events, multi-media campaigns, inter-agency partnerships, corporate environmental fairs, professional trade shows, landscaping workshops and seminars. In addition to Valley Water's public information program, City staff also disseminates information to the public through City media, the City's annual Consumer Confidence Report, and City sponsored events.

In the spring of 2018, Valley Water embarked on an effort to establish a Community-Based Social Marketing strategy to supplement the Conservation campaign. Community-Based Social Marketing, or CBSM for short, is a strategy designed by behavioral scientists (sociologists, psychologists, etc.) to obtain behavior change by removing barriers and establishing social norms. CBSM was initially designed to enhance sustainable and environmentally conscious behaviors. Valley Water's Conservation CBSM Campaign had two objectives: to increase the number of participants in the Landscape Rebate Program and specifically increase lawn conversions;

and to increase the number of Graywater Rebate Program participants. Valley Water employed a variety of outreach methods. An evaluation of these methods is expected to be completed in 2021.

Due to the COVID-19 pandemic during 2020 and part of 2021, most public outreach has been focused on online content.

School Education Programs

Valley Water has a full-time staff to coordinate the school education programs and contract with the Youth Science Institute for additional instructors and coordination. Valley Water provides free classroom presentations, puppet plays, and tours of district facilities to schools within the county. The objective is to teach students about water conservation, water supply, watershed stewardship and flood protection. Valley Water also provides school curricula to area educators, including workbooks and videos, as well as hands-on training for teachers. Students range from pre-kindergarten through college. Included in the educational services is Project WET (Water Education for Teachers) to train teachers how to lead their own classroom activities to independently educate students on water-related topics into the future.

Due to the COVID-19 pandemic, most educational programs have been moved to online platforms.

Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts

Water Efficient Technology Rebate Program

The Water Efficient Technology Rebate (WET Rebate or WET Program; formerly known as the Custom/Measured Rebate Program) provides rebates for process, technology, and equipment retrofits that save water. To encourage all commercial and industrial businesses to implement permanent water reduction measures, unique projects that meet program requirements are eligible for a rebate of either $4 per hundred cubic feet (CCF) of water saved or 50% of equipment costs excluding taxes and labor, whichever is less, up to $50,000. Projects must save at least 100 cubic feet of water annually. Examples of such projects are generally unique to specific industries such as ozone laundry systems or technologies to reduce potable water use when maintaining ice rinks, with myriad other examples. In January 2014, these rebates were temporarily increased to $8 per CCF to promote participation during the drought before returning to $4 per CCF. Cost sharing agreements increase the rate and maximum rebate in some areas.

In 2021, Valley Water will adjust the program so that the rebate will be based on either the lesser of $4 per CCF or up to 100% of equipment costs excluding taxes and labor, up to $100,000. This doubles the potential proportion of equipment costs covered by the rebate in addition to doubling the maximum rebate. The WET Rebate continues to be one of Valley Water's most cost-effective programs in meeting the region's long-term water conservation goals.

Commercial Toilet Program

Valley Water offered an Ultra Low Flush Toilet (ULFT) Rebate Program in commercial, industrial, and institutional (CII) sites since 1994. In FY 2005 the District switched to High-Efficiency Toilets (HETs) and recently initiated a urinal program to replace old flush valves. The CII toilet rebate programs have frequently been offered in tandem with various iterations of high-efficiency urinal (HEU) programs, HET and HEU direct install programs, and retrofit programs for urinal valve installation.

In order to increase efficiency and cost effectiveness, Valley Water created a successful pilot program in 2020 which replaced fifty-nine (59) 1.6 gpf toilets with 0.8 gpf toilets in a low-income apartment complex. This pilot will serve as the basis for a new Fixture Replacement Program to launch in 2021 to replace or retrofit toilets, urinals, and more for multi-family residences and commercial, industrial, and institutional properties.

Commercial Faucet Aerator Program

Since 2010, Valley Water has offered free 0.5 gallon per minute faucet aerators to qualifying businesses and schools. Much of the recent distribution is due to a direct distribution program called WaterLink (described

below), which was administered by a local non-profit organization, Ecology Action, and focused on water and energy efficiency direct installation measures.

Pre-Rinse Spray Valve Program

Pre-rinse spray valves are designed to remove food waste from dishes prior to dishwashing and are often used in commercial kitchens. In previous years, Valley Water partnered with other agencies to offer a direct installation program for high-efficiency pre-rinse spray valves (PRSVs). In 2010 Valley Water purchased a quantity of PRSVs with a flow rate of 1.15 gallons per minute for distribution to commercial sites, especially those identified through Valley Water's previous CII Water Survey Program. Valley Water plans to continue distributing these devices to meet the region's long-term water conservation goals.

WaterLink Program

In collaboration with Ecology Action, Valley Water funded a program called WaterLink, a water/energy savings program that provided turnkey water/energy upgrades to residents, businesses, schools, and public agencies throughout Santa Clara County. Efforts were focused within Disadvantaged Community Census tracts (defined by scoring 76% and above using California Environmental Screening Tools version 2.0). To achieve significant water and energy savings, the WaterLink program delivered a suite of direct installation projects that produced persistent water/energy savings and tangible economic benefits by reducing utility bills. Direct installation equipment included efficient showerheads and aerators, clothes washers, pre-rinse spray valves, and ozone laundry systems. Additionally, the program included replacing turfgrass with low-water using landscape. The WaterLink program has concluded.

Wholesale Agency Assistance Program

Valley Water, through a unique cooperative partnership with its retailers, offers regional implementation of a variety of water conservation programs in an effort to permanently reduce water use in Santa Clara County. It continues to collaborate with water retailers to implement various water conservation programs on a regional basis, ensuring its long-term water supply reliability goals are met as well as assisting its water retailers in meeting their goals, including compliance with recent legislation calling for 20% reduction per capita water use by 2020.

Conservation Coordinator

As noted in Section 9.1, as part of the City's response to the most recent drought, the City established a Water Conservation Program.

Water Waste Prohibition

In May 1994, the City adopted a Water Conservation Ordinance No. 240, amended it in August 2005, and further amended it in June 2017, which describes water use prohibitions. (Ordinance 240.6 can be found in the City's WSCP; see Appendix I of this UWMP.) The City is currently drafting a new ordinance to align with its updated WSCP.

9.3 Planned Implementation to Achieve Water Use Targets

As discussed in Chapter 5, the City of Milpitas has met its water use targets. The City will continue to promote Valley Water's conservation programs and BAWSCA's landscape classes to the community.

9.4 Members of the California Water Efficiency Partnership

The City is not a member of the California Urban Water Conservation Council (Council). However, the City has submitted annual reports to the Council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, as amended.

9.5 Water Use Objectives (Future Requirements)

Beginning in 2023, Urban Water Suppliers are required to calculate and report their annual urban water use objective (WUO), submit validated water audits annually, and to implement and report best management practice (BMP) CII performance measures.

Urban Water Use Objective

An Urban Water Supplier's urban WUO is based on efficient water use of the following:

- Aggregate estimated efficient indoor residential water use
- Aggregate estimated efficient outdoor residential water use
- Aggregate estimated efficient outdoor irrigation landscape areas with dedicated irrigation meters or equivalent technology in connection with CII water use
- Aggregate estimated efficient water losses
- Aggregate estimated water use for variances approved by the State Water Board
- Allowable potable reuse water bonus incentive adjustments

Valley Water and the City offers a suite of programs, described in detail throughout this chapter, that will help the City meet and calculate the WUO.

The following table describes the City's programs that will assist the City in meeting its WUO through both direct measures: programs/activities that result in directly quantifiable water savings; and indirectly: programs that provide resources promoting water efficiencies to the public that are impactful but not directly measurable.

Table 9-1. Programs to Assist in Meeting Water Use Objectives

WUO Component	Calculation	Program	Impact
Indoor Residential	Population and GPCD standard	Direct Impact • Plumbing Devices Giveaways Indirect Impact • Water efficiency surveys • Public and School Education	Direct Impact: Increase of indoor residential efficiencies and reductions through GPCD use Indirect Impact: Provide information, resources, and education to promote efficiencies in the home
Outdoor Residential	Irrigated/irrigable area measurement and a percent factor of local ETo	Direct Impact • Landscape Conversion • Weather-Based Irrigation Controller upgrade • In-line drip conversion Indirect Impact • Landscape Surveys • Public and School Education	Direct Impact: Increase outdoor residential efficiencies and reductions of gallons per ft2 of irrigated/ irrigable area use Indirect Impact: Provide information, resources, and education to promote efficiencies in the landscape
Outdoor Dedicated Irrigation Meters	Irrigated/irrigable area measurement and a percent factor of local ETo	Direct Impact • Turf Removal • Landscape incentives Indirect Impact • Public and School Education • Landscape Survey	Direct Impact: Increase outdoor residential efficiencies and reductions of gallons per ft2 of irrigated/ irrigable area used Indirect Impact: Provide information, resources, and education to promote efficiencies in the landscape
Water Loss	Following the AWWA M36 Water Audits and Water Loss Control Program, Fourth Edition and AWWA Water Audit Software V	Direct Impact • Water Balance Validation • Customer Meter Accuracy Testing • Distribution System Pressure Surveys • Distribution System Leak Detection • No-Discharge Distribution System Flushing • Water Audit Compilation • Component Analysis	Direct Impact: Identify areas of the distribution system that need repair, replacement, or other action

10 PLAN ADOPTION, SUBMITTAL AND IMPLEMENTATION

Lay Description

Procedures for adopting and implementing the UWMP in a transparent and stakeholder-accessible manner are important for good governance of water resources. It is important for customers to have the opportunity to understand how water is managed and how reliable it is. Supporting a public process through adequate notifications and public hearings also allows for the interested public to submit comments and suggest revisions affecting reliability and future investments in local water management. Adopting the plan makes it part of the formal management of the Supplier, which is often important for justifying investment decisions and potential rate restructuring over the near- and long-term. In this chapter, information is provided on the processes the City of Milpitas followed for the UWMP public hearing, adoption, submission of the adopted UWMP and its public availability, plan implementation and amending an adopted UWMP.

This 2020 UWMP also includes a Water Shortage Contingency Plan as required under the provisions of AB 11X of (1991) and addresses changes required by subsequent legislation including the Water Conservation Act of 2009 (SB X7-7). The WSCP also incorporates the water conservation initiatives that the City has implemented.

If any update is made to this 2020 UWMP or the WSCP, the City will follow the amendment process outlined in Section 10.6 of this UWMP.

As required by Section 10621 (a) of the Water Code, the City will update the UWMP again for the 2025 UWMP process.

10.1 Notice of Public Hearing

A public hearing before the City Council was held on June 15, 2021, to discuss and receive comments/input regarding the City's 2020 UWMP and WSCP prior to its adoption. The public hearing was advertised in *The Milpitas Post* 14 days and 7 days prior to the hearing. See Appendix E for a copy of the newspaper notice.

10.1.1 Notice to Cities and Counties

This section describes the notice to cities, county and other entities that the City of Milpitas distributed. The notice included the location where the 2020 UWMP could be viewed, the UWMP revision schedule and the City's contact information. A copy of this notice is included in Appendix D. Table 10-1 lists the specific entities notified.

Table 10-1. Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
City of Brisbane	Yes	Yes
City of Burlingame	Yes	Yes
City of Daly City	Yes	Yes
City of East Palo Alto	Yes	Yes
City of Foster City	Yes	Yes
City of Gilroy	Yes	Yes
City of Hayward	Yes	Yes
City of Hillsborough	Yes	Yes
City of Menlo Park	Yes	Yes
City of Millbrae	Yes	Yes
City of Morgan Hill	Yes	Yes
City of Mountain View	Yes	Yes
City of Palo Alto	Yes	Yes
City of Redwood City	Yes	Yes
City of San Bruno	Yes	Yes
City of San Jose	Yes	Yes
City of Santa Clara	Yes	Yes
City of Sunnyvale	Yes	Yes
Alameda County Water District	Yes	Yes
BAWSCA	Yes	Yes
California Water Service	Yes	Yes
Coastside County Water District	Yes	Yes
Great Oaks Water Company	Yes	Yes
Mid-Peninsula Water District	Yes	Yes
Milpitas Chamber of Commerce	Yes	Yes
Milpitas Unified School District	Yes	Yes
Montara Water and Sanitary District	Yes	Yes
North Coast County Water District	Yes	Yes
Purissima Hills Water District	Yes	Yes
SFPUC - Wholesaler	Yes	Yes
San Jose Water	Yes	Yes
Stanford University	Yes	Yes
Valley Water - Wholesaler	Yes	Yes
Westborough Water District	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Santa Clara County	Yes	Yes

10.1.2 Notice to the Public

The public was notified on May 28, 2021 and June 4, 2021 prior to the public hearing that the City would be reviewing and considering amendments to the UWMP. The public hearing was placed in a local newspaper for two successive weeks (14 calendar days) or two separate one-week timeframes with at least five days between publication dates, as prescribed in Government Code Section 6066.[48] This notice included time and place of hearing as well as the location where the UWMP was available for public inspection. Notification came through a display advertisement in *The Milpitas Post* (see Appendix E) and by posting the 2020 UWMP on the City's website (https://www.ci.milpitas.ca.gov/2020_uwmp/) by June 2, 2021.

10.2 Public Hearing and Adoption

This section details the public hearing and adoption processes for the 2020 UWMP and WSCP.

10.2.1 Public Hearing

The public hearing allowed for community input, consideration of economic impacts and adoption of a method for determining the City's urban water use target. As part of the public hearing, the City provided information on its baseline values, water use targets and compliance and implementation plan required in the Water Conservation Act of 2009.

10.2.2 Adoption

This 2020 UWMP was presented to the City Council for review and adopted on June 15, 2021, thereby superseding the existing plan prepared in 2015. The adopted 2020 UWMP has been filed with the Water Efficiency Office in the Department of Water Resources, the California State Library, the Bay Area Water Supply & Conservation Agency, the City offices, Santa Clara County and the Cities of Brisbane, Burlingame, Daly City, East Palo Alto, Foster City, Gilroy, Hayward, Hillsborough, Menlo Park, Millbrae, Morgan Hill, Mountain View, Palo Alto, Redwood City, San Bruno, San Jose, Santa Clara and Sunnyvale, as required by law, and will be used by the City staff during the current five-year planning cycle.

A copy of the resolution adopting the 2020 UWMP is provided in Appendix F.

10.3 Plan Submittal

To satisfy California Water Code Sections 10635(c), 10644(a)(1) and (2) and 10645(a) and (b), within 30 days of adoption, the City submitted a copy of the 2020 UWMP and WSCP to DWR, the California State Library Government Publications Section (Sacramento) and to any city or county to which the City provides water.

10.3.1 Submitting a UWMP and WSCP to DWR

To satisfy DWR requirements, all UWMPs and WSCPs must be submitted to DWR within 30 days of adoption and prior to July 1, 2021. The City met this requirement as outlined in the following sections.

10.3.2 Electronic Data Submittal

The City submitted its 2020 UWMP and WSCP to DWR electronically. Documentation confirming the City's 2020 UWMP and WSCP submittal can be found in Appendix G.

[48] California State Legislature. (1949). Government Code Section 6066. http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=6066

10.3.3 Submitting a UWMP to the California State Library

The City submitted a CD or hard copy of its adopted 2020 UWMP to the California State Library within 30 days of adoption.

10.3.4 Submitting a UWMP to Cities and Counties

The City submitted a copy of its adopted 2020 UWMP to any city or county served by the City within 30 days of adoption.

10.4 Public Availability

Within 30 days after filing the 2020 UWMP and WSCP with DWR, the documents were made available for public review on the City's website.

10.5 Notification to Public Utilities Commission

Per Water Code Section 10621(c), Suppliers that are regulated by the California Public Utilities Commission (CPUC) must submit their UWMP and WSCP to the CPUC as part of its general rate case filings. Since this was not applicable to the City, the plans were not submitted to the CPUC.

10.6 Amending an Adopted UWMP or WSCP

Should any changes be made to the 2020 UWMP and/or the WSCP, per Water Code Sections 10621(d) and 10644(a)(1), within 30 days after adoption, the City must submit copies of the amendments or changes to DWR, the California State Library and any city or county to which the City supplies water.

10.6.1 Amending a UWMP

If the City amends the adopted 2020 UWMP, each of the steps for notification, public hearing, adoption and submittal must also be followed for the amended UWMP.

10.6.2 Amending a WSCP

Specific to Water Code Section 10644(b), if the City revises its WSCP after DWR has approved the 2020 UWMP, the City must submit to DWR an electronic copy of the revised WSCP within 30 days of adoption.

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APPENDIX A – UWMP CHECKLIST

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficientuses, reclamation, and demand management activities.	Introduction and Overview	Section 1.2
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	Start of Each Chapter
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	Chapter 1 and Section 2.1
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	Sections 2.1, 2.3, and 10.1
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 2.6.2
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 4.2.6

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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 (Wholesale Only)
Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Sections 3.1 and 3.2
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 3.4.1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.4.2
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.4.1
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.5
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System WaterUse	Sections 4.2.3, 4.2.5, and 4.2.6
Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System WaterUse	Section 4.2.4
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 WaterUse	Section 4.2.6 and Appendix C

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System WaterUse	Section 4.2.6 and Appendix C
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 WaterUse	Section 4.3.2
Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System WaterUse	Section 4.4
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System WaterUse	Sections 4.5 and 7.3.1, Appendix K and L
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	Sections 5.3 and 5.6
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.7.1
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 (Wholesale Only)
Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.7.2

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.6
Section 5.5 andAppendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shallbe reported using a standardized form in the SB X7-7 2020 Compliance Form.	Baselines and Targets	Section 5.7.2
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	Sections 7.2.3, 7.2.5, and 7.3
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	Sections 7.2.3, 7.2.5, and 7.3
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	Sections 6.2.1, 6.2.2, 6.2.5, and 6.2.11
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Sections 6.2.6, 6.2.7, and 6.2.9
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	Sections 6.2.9
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2.2

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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 ofthe plan or authorization.	System Supplies	Section 7.2.3
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.2.2
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2
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 6.2.2
Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years.	System Supplies	Section 6.2.2
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2.2 and 6.2.9
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 6.2.7
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 (RecycledWater)	Section 6.2.5

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.2.5
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 (RecycledWater)	Section 6.2.5
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the endof 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (RecycledWater)	Section 6.2.5
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 (RecycledWater)	Section 6.2.5
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 6.2.5
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.2.6
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systemsin the supplier’s service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (RecycledWater)	Section 6.2.5
Section 6.2.8, Section 6.3.7	10631(f)	Describe 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 6.2.8
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 6.4

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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 7.2.3
Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.2.6
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 tothe water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.2
Section 7.3	10635(b)	Provide a drought risk assessment as part of informationconsidered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.3
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.3.1
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	Sections 7.2.5 and 7.3
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 7.3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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	Sections 7.2.3 and 7.3.1
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	2020 UWMP Appendix I 2020 WSCP
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP.	Water Shortage Contingency Planning	2020 WSCP Section 3.1
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	2020 WSCP Section 3.11
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will useeach year to determine its water reliability.	Water Shortage Contingency Planning	2020 WSCP Section 3.2
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	2020 WSCP Section 3.2.2
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. Theselevels 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 catastrophicinterruption of supply.	Water Shortage Contingency Planning	2020 WSCP Section 3.3

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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	N/A – using six standard categories
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	2020 WSCP Section 3.4.2
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	2020 WSCP Section 3.4.1
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	2020 WSCP Section 3.4.3
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	2020 WSCP Section 3.4.4
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	2020 WSCP Sections 3.4.1 and 3.4.2
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	2020 WSCP Section 3.5
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	2020 WSCP Section 3.6 and WSCP Appendix B
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	2020 WSCP Section 3.6 and WSCP Appendix B

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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	2020 WSCP Section 3.7 and WSCP Appendix A
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	2020 WSCP Section 3.8
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	2020 WSCP Section 3.8
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	2020 WSCP Section 3.8
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	2020 WSCP Section 3.9
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 responseactions.	Water Shortage Contingency Planning	2020 WSCP Section 3.9
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	2020 WSCP Section 3.9
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	2020 WSCP Section 3.10

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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	2020 WSCP Section 3.12
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 within 30 days after submission of plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.3.4 2020 WSCP Section 3.12
Section 8.14	10632(c)	Make Water Shortage Contingency Plan available to customers and any city or county where it provides water within 30 days after adopting it.	Water Shortage Contingency Planning	Sections 10.3.4 and 10.4 2020 WSCP Section 3.12
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 (Wholesale Only)
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. Description will address specific measures listed in code.	Demand Management Measures	Sections 9.1 and 9.2
Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Section 10.2.1
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	Sections 2.6.3 and 10.1.1

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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 10.3.1
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan andcontingency plan.	Plan Adoption, Submittal, and Implementation	Section 10.1.2 and Appendix E
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 10.1.2 and Appendix E
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	Appendix F of the UWMP and Appendix D of the WSCP
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	Sections 10.2.2 and 10.3.3
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	Sections 10.2.2 and 10.3.4
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 10.3.2
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 10.4

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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 normalbusiness hours.	Plan Adoption, Submittal, and Implementation	Section 10.4
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 – The City of Milpitas is not regulated by the Public Utilities Commission.
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 10.6.2

APPENDIX B – WATER AUDIT REPORTS

American Water Works Association
California-Nevada Section

CA-NV AWWA Water Loss Technical Assistance Program

Wave 4 Water Audit Level 1 Validation Document

Validator Provided

Audit Information:

Utility: Milpitas PWS ID: 4310005

System Type: Potable Audit Period: Calendar 2016

Utility Representation: Courtney Rubin, Dante Ong, Joon Hong, Harris Siddiqui

Validation Date: 8/7/2017 Call Time: 9:00am Sufficient Supporting Documents Provided: Yes

(amended 9/27/2017 with supporting document correction of BMAC volume)

Validation Findings & Confirmation Statement:

Key Audit Metrics:

Data Validity Score: 55 Data Validity Band (Level): Band III (51-70)

ILI: 2.35 Real Loss: 47.75 (gal/conn/day) Apparent Loss: 22.38 (gal/conn/day)

Non-revenue water as percent of cost of operating system: 13.0

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. ☒

Validator Information:

Water Audit Validator: Will Jernigan Validator Qualifications: Contractor for CA-NV AWWA Water Loss TAP

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American Water Works Association
California-Nevada Section

CA-NV AWWA Water Loss Technical Assistance Program

Wave 4 Water Audit Level 1 Validation Document

Utility Provided

Water System Name: Milpitas Water System ID Number: 431005 Water Audit Period: Calendar 2016

Water Audit & Water Loss Improvement Steps:

Steps taken in preceding year to increase data validity, reduce real loss and apparent loss as informed by the annual validated water audit:

The City of Milpitas put a meter replacement budget in place, and began tracking water meter replacement calibration tests. The City initiated research and began laying the foundation to implement an Advanced Metering Infrastructure (AMI). A line of communication was opened with wholesalers to track water supply, and better understand meter reading and calibration practices.

Certification Statement by Utility Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audits and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

TONY NDAH	DEPUTY PUBLIC WORKS DIRECTOR		9/27/2017
Executive Name (Print)	Executive Position	Signature	Date

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Level 1 Validation Certificate

WSO

This document verifies that the Level 1 Validation process was completed. The session details and audit review outcomes are included here.

This certificate is required for submission – alongside the Level 1 validated water audit software file – to the California Department of Water Resources.

Call Date: 9/10/2018

Water Supplier

Supplier Name:	City of Milpitas
Supplier Participants:	Tony Ndah, Harris Siddiqui

Validator

Validator:	Kate Gasner, Water Systems Optimization
Validator Qualifications:	Water Audit Validator Certificate from the AWWA California Nevada Section

Key Audit Metrics

Data Validity Score:	64	
ILI:	0.66	
Real Loss:	13.4	gal / conn / day
Apparent Loss:	16.8	gal / conn / day
Non-Revenue Water as Percent of Cost of Operating System:	4.0%	

Certification Statement by Validator

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. ☒

Level 1 Validation – Water Supplier Confirmation

This document confirms participation in and endorsement of the Level 1 Validation as completed.

This acknowledgement is required for submission – alongside your Level 1 validated water audit software file – to the California Department of Water Resources.

Water Supplier Name:	City of Milpitas
Water Supplier Public Water System ID:	431005
Water Audit Period:	Calendar 2017

Water Audit & Water Loss Improvement Steps

Steps taken in the audit period timeframe to increase data source accuracy, reduce real losses, and/or reduce apparent losses, as informed by the water audit.

The City of Milpitas continues to replace meters, and track water meter replacement calibration test. The City initiated a condition assessment study through the implementation of a city-wide corrosivity survey. Appropriations have been made for the current and following fiscal year budgets to develop a Water Master Plan.

Certification Statement by Water Supplier Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audits and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

Executive Name (print):	Tony Ndah
Executive Position:	Public Works Director
Signature:	
Date	10/1/2018

Level 1 Validation Certificate

WSO

This document verifies that the Level 1 Validation process was completed. The session details and audit review outcomes are included here.

This certificate is required for submission – alongside the Level 1 validated water audit software file – to the California Department of Water Resources.

Call Date: 8/8/2019

Water Supplier

Supplier Name:	City of Milpitas
Supplier Participants:	Tony Ndah, Glen Campi, Harris Siddiqui, Teddy Alicante

Validator

Validator:	Colin Stief Water Systems Optimization
Validator Qualifications:	Water Audit Validator Certificate from the AWWA California Nevada Section

Key Audit Metrics

Data Validity Score:	63	
ILI:	2.19	
Real Loss:	42.67	gal / conn / day
Apparent Loss:	11.14	gal / conn / day
Non-Revenue Water as Percent of Cost of Operating System:	2.8%	

Certification Statement by Validator

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. ☒

Level 1 Validation – Water Supplier Confirmation

This document confirms participation in and endorsement of the Level 1 Validation as completed.

This acknowledgement is required for submission – alongside your Level 1 validated water audit software file – to the California Department of Water Resources.

Water Supplier Name:	City of Milpitas
Water Supplier Public Water System ID:	4310005
Water Audit Period:	Calendar 2018

Water Audit & Water Loss Improvement Steps

Steps taken in the audit period timeframe to increase data source accuracy, reduce real losses, and/or reduce apparent losses, as informed by the water audit.

The City of Milpitas continues to replace meters and track meter replacement calibration tests. New meters installed within the audit period were equipped with AMI transponder technology. The City of Milpitas launched a city-wide soil corrosivity survey and an RFP was prepared for water master planning.

Certification Statement by Water Supplier Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audits and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

Executive Name (print):	Tony Ndah
Executive Position:	Public Works Director
Signature:	
Date	9/25/2019

Level 1 Validation Certificate

This document verifies that the Level 1 Validation process was completed. The session details and audit review outcomes are included here.

This certificate is required for submission – alongside the Level 1 validated water audit software file – to the California Department of Water Resources.

Call Date: 9/24/2020

Water Supplier

Supplier Name:	City of Milpitas
Supplier Participants:	Tony Ndah, Glen Campi, Harris Siddiqui, Teddy Alicante

Validator

Validator:	Kevin Burgers, Water Systems Optimization
Validator Qualifications:	Water Audit Validator Certificate from the AWWA California Nevada Section

Key Audit Metrics

Data Validity Score:	60	
ILI:	2.27	
Real Loss:	45.83	gal / conn / day
Apparent Loss:	12.03	gal / conn / day
Non-Revenue Water as Percent of Cost of Operating System:	4.1%	

Certification Statement by Validator

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. ☒

Level 1 Validation – Water Supplier Confirmation

This document confirms participation in and endorsement of the Level 1 Validation as completed.

This acknowledgement is required for submission – alongside your Level 1 validated water audit software file – to the California Department of Water Resources.

Water Supplier Name:	City of Milpitas
Water Supplier Public Water System ID:	4310005
Water Audit Period:	Calendar 2019

Water Audit & Water Loss Improvement Steps

Steps taken in the audit period timeframe to increase data source accuracy, reduce real losses, and/or reduce apparent losses, as informed by the water audit.

The City of Milpitas continues to track meter calibration test results and replace meters as needed. New meters installed within the audit period were equipped with AMI transponder technology. In addition, the first phase of the Leak Detection Survey project took place in December 2019 and was intended to identify potential water system leaks within specific regions of the City. The City of Milpitas intends to carry on with the next phase of the Leak Detection Survey in 2020.

Certification Statement by Water Supplier Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audits and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

Executive Name (print):	Tony Ndah
Executive Position:	Public Works Director
Signature:	
Date	9/29/2020

APPENDIX C – DEMAND & PASSIVE SAVINGS METHODOLOGY

C.1 DSS Model Overview

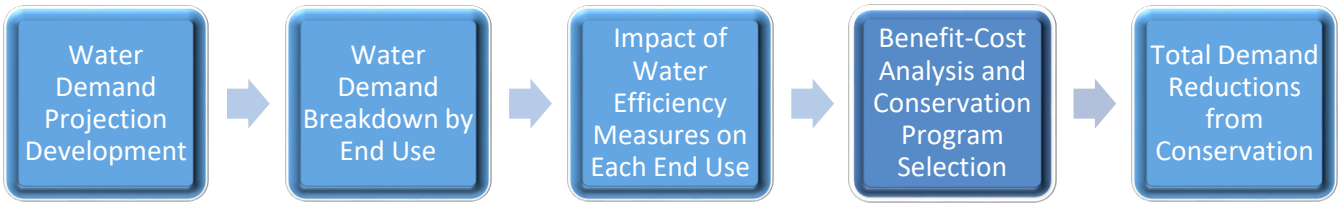


Figure C-1. DSS Model Main Page

DSS Model Overview: The Least Cost Planning Decision Support System Model (DSS Model) is used to prepare long-range, detailed demand projections. The purpose of the extra detail is to enable a more accurate assessment of the impact of water efficiency programs on demand and to provide a rigorous and defensible modeling approach necessary for projects subject to regulatory or environmental review.

Originally developed in 1999 and continuously updated, the DSS Model is an "end-use" model that breaks down total water production (water demand in the service area) to specific water end uses, such as plumbing fixtures and appliances. The model uses a bottom-up approach that allows for multiple criteria to be considered when estimating future demands, such as the effects of natural fixture replacement, plumbing codes, and conservation efforts. The DSS Model may also use a top-down approach with a utility-prepared water demand forecast.

Demand Forecast Development and Model Calibration: To forecast urban water demands using the DSS Model, customer demand data is obtained from the water agency being modeled. Demand data is reconciled with available demographic data to characterize water usage for each customer category in terms of number of users per account and per capita water use. Data is further analyzed to approximate the split of indoor and outdoor water usage in each customer category. The indoor/outdoor water usage is further divided into typical end uses for each customer category. Published data on average per capita indoor water use and average per capita end use is combined with the number of water users to calibrate the volume of water allocated to specific end uses in each customer category. In other words, the DSS Model checks that social norms from end studies on water use behavior (e.g., flushes per person per day) are not exceeded or drop below reasonable use limits.

Passive Water Savings Calculations: The DSS Model is used to forecast service area water fixture use. Specific end-use type, average water use, and lifetime are compiled for each fixture. Additionally, state and national plumbing codes and appliance standards are modeled by customer category. These fixtures and plumbing codes can be added to, edited, or deleted by the user. This process yields two demand forecasts, one with plumbing codes and one without plumbing codes.

Active Conservation Measure Analysis Using Benefit-Cost Analysis: The DSS Model evaluates active conservation measures using benefit-cost analysis with the present value of the cost of water saved ($/Million Gallons or $/Acre-Feet). Benefits are based on savings in water and wastewater facility operations and maintenance (O&M) and any deferred capital expenditures. The figures on the previous page illustrate the processes for forecasting conservation water savings, including the impacts of fixture replacement due to existing plumbing codes and standards.

Figure C-2. Sample Benefit-Cost Analysis Summary

Conservation Measures

Benefit Cost Analysis

Previo | Conser | AMI | RES | WC | IRR | CIIR | NO | MU | LDS | PRV | LEA | UHE | UHE | TOI | HO | RAI | RAI | SPR | Lan | SCH | GEN | DIP | B/C | Next

Review Data

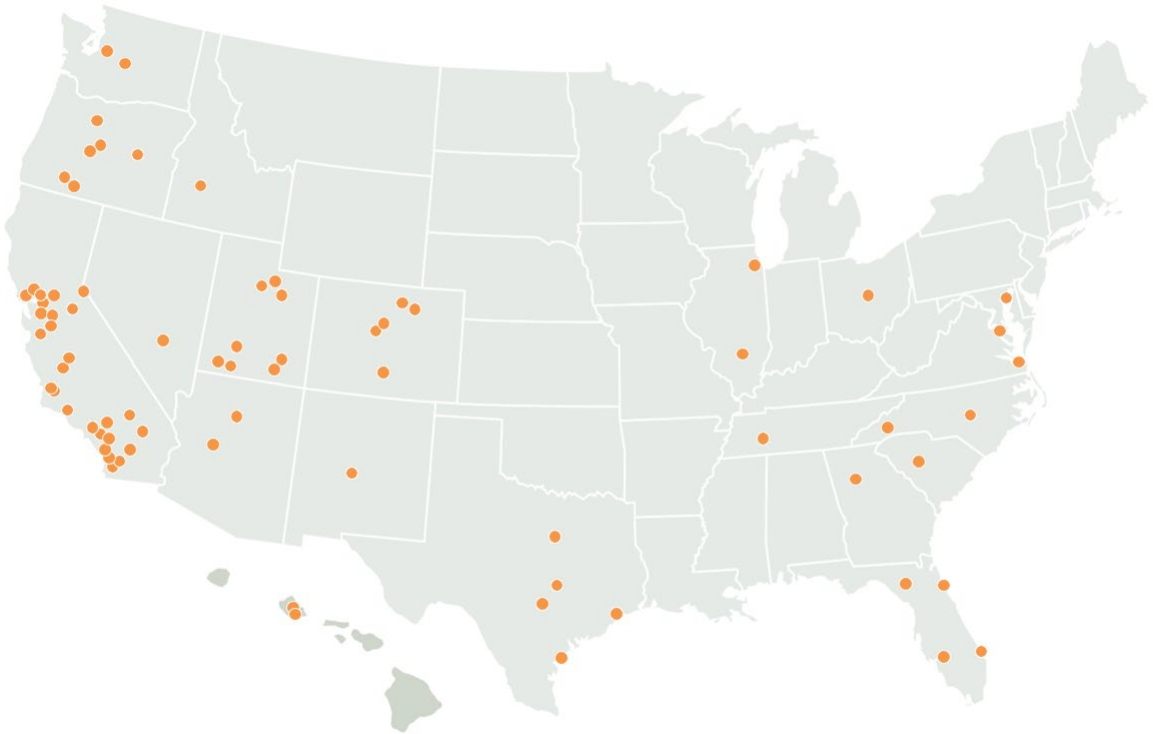
Benefit Cost Analysis

Util Cost Five Year Start Year: 2020 | Water Savings Year: 2030 | Units: AF

	Measure	Present Value of Water Utility Benefits	Present Value of Community Benefits	Present Value of Water Utility Costs	Present Value of Community Costs	Water Utility Benefit to Cost Ratio	Community Benefit to Cost Ratio	Five Years of Water Utility Costs 2020-2025	Water Savings in 2030 (afy)	Cost of Savings per Unit Volume ($/af)
AMI	Full AMI Implementation	$3,976,434	$16,635,194	$1,566,069	$5,893,340	2.54	2.82	$320,000	133.764878	$324
RESH	Residential Rebates for HECW	$139,312	$365,447	$95,879	$200,665	1.45	1.82	$50,325	5.124572	$824
WC	Water Checkup	$7,648,165	$30,288,419	$6,005,949	$7,665,564	1.27	3.95	$1,382,995	239.652915	$877
IRREV	Irrigation Evaluations	$1,589,488	$1,589,488	$1,918,184	$4,332,779	0.83	0.37	$443,824	98.051821	$646
CIIRe	CII Water Survey Level 2 and Customized Rebate	$910,720	$3,313,109	$915,904	$2,581,185	0.99	1.28	$193,725	18.753753	$1,055
NOZZ	Free Sprinkler Nozzle Program	$277,886	$277,886	$329,386	$455,933	0.84	0.61	$103,145	23.005687	$680
MULC	Mulch Program	$80,739	$80,739	$287,676	$287,676	0.28	0.28	$66,932	4.554625	$2,000
LDS	Water Conserving Landscape and Irrigation Codes	$1,055,819	$1,055,819	$350,316	$7,979,608	3.01	0.13	$78,568	46.098525	$161
PRV	Pressure Reduction Valve Rebate	$102,170	$193,972	$49,161	$132,223	2.08	1.47	$37,818	8.503521	$425
LEAK	Leak Detection Device Rebate	$174,130	$847,416	$306,843	$1,288,743	0.57	0.66	$80,053	6.065394	$1,895
UHET	Ultra-High Efficiency Toilet Rebate	$538,624	$538,624	$405,529	$761,556	1.33	0.71	$362,736	16.287780	$921

Model Use and Validation: The DSS Model has been used for over 20 years for practical applications of conservation planning in over 300 service areas representing 60 million people, including extensive efforts nationally and internationally in Australia, New Zealand, and Canada.

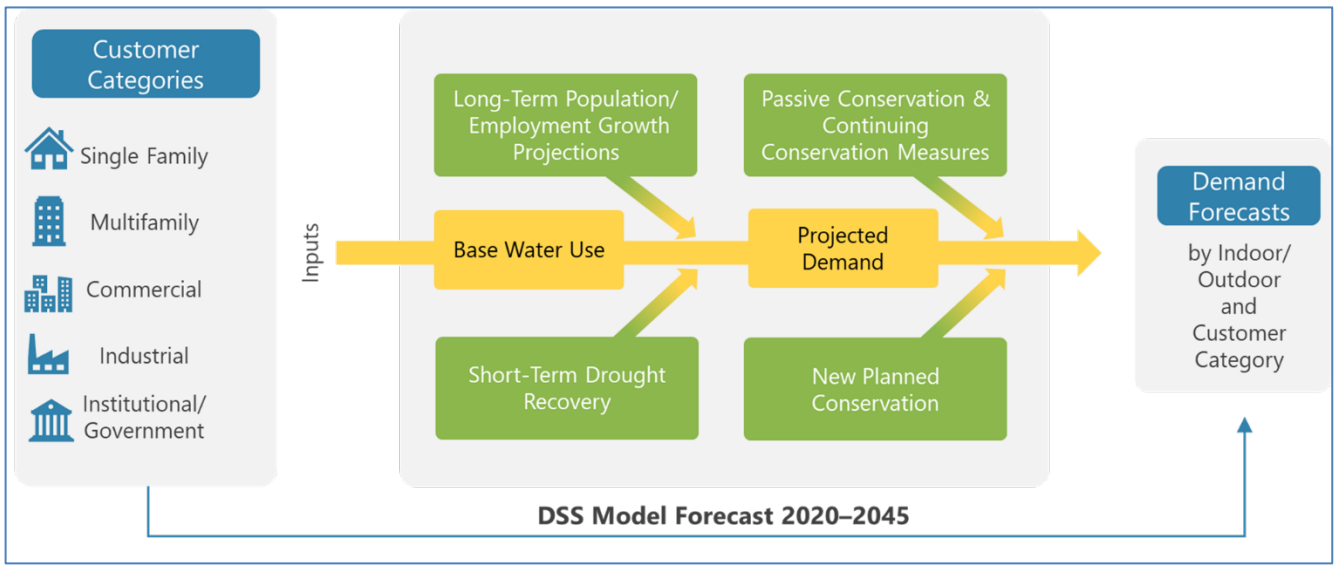
Figure C-3. DSS Model Analysis Locations in the U.S.



The California Water Efficiency Partnership, or CalWEP (formerly the CUWCC), has peer reviewed and endorsed the model since 2006. It is offered to all CalWEP members for use to estimate water demand, plumbing code, and conservation program savings.

The DSS Model can use one of the following: 1) a statistical approach to forecast demands (e.g., an econometric model); 2) a forecasted increase in population and employment; 3) predicted future demands; or 4) a demand projection entered into the model from an outside source. The following figure presents the flow of information in the DSS Model Analysis.

Figure C-4. DSS Model Analysis Flow



C.2 DSS Model Methodology

Each conservation measure targets a particular water use, such as indoor single family water use. Targeted water uses are categorized by water user group and by end use. Targeted water user groups include single family residential; multi-family residential; commercial, industrial, and institutional; and so forth. Measures may apply to more than one water user group. Targeted end uses include indoor and outdoor use. The targeted water use is important to identify because the water savings are generated from reductions in water use for the targeted end use. For example, a residential retrofit conservation measure targets single family and multi-family residential indoor use, and in some cases specifically shower use. When considering the water savings potential generated by a residential retrofit, one considers the water saved by installing low-flow showerheads in single family and multi-family homes.

The market penetration goal for a measure is the extent to which the product or service related to the conservation measure occupies the potential market. Essentially, the market penetration goal identifies how many fixtures, rebates, surveys, and so forth that the wholesale customer would have to offer or conduct over time to reach its water savings goal for that conservation measure. This is often expressed in terms of the number of fixtures, rebates, or surveys offered or conducted per year.

The potential for error in market penetration goal estimates for each measure can be significant because the estimates are based on previous experience, chosen implementation methods, projected utility effort, and funds allocated to implement the measure. The potential error can be corrected through reevaluation of the measure as the implementation of the measure progresses. For example, if the market penetration required to achieve specific water savings turns out to be different than predicted, adjustments to the implementation efforts can be made. Larger rebates or additional promotions are often used to increase the market penetration. The

process is iterative to reflect actual conditions and helps to ensure that market penetration and needed savings are achieved regardless of future variances between estimates and actual conditions.

In contrast, market penetration for mandatory ordinances can be more predictable with the greatest potential for error occurring in implementing the ordinance change. For example, requiring dedicated irrigation meters for new accounts through an ordinance can assure an almost 100% market penetration for affected properties.

The City is constantly examining when a measure might reach saturation. Baseline surveys are the best approach to having the most accurate information on market saturation. This was considered when analyzing individual conservation measures where best estimates were made. MWM was not provided with any baseline surveys for this analysis, but discussions were held with the City regarding what the saturation best estimates were within its service area.

C.3 Present Value Analysis and Perspectives on Benefits and Costs

The determination of the economic feasibility of water conservation programs involves comparing the costs of the programs to the benefits provided using the DSS Model, which calculates the cost effectiveness of conservation measure savings at the end-use level. For example, the model determines the amount of water a toilet rebate program saves in daily toilet use for each single family account.

Present value analysis using present day dollars and a real discount rate of 3% is used to discount costs and benefits to the base year. From this analysis, benefit-cost ratios of each measure are computed. When measures are put together in programs, the model is set up to avoid double counting savings from multiple measures that act on the same end use of water. For example, multiple measures in a program may target toilet replacements. The model includes assumptions to apportion water savings between the multiple measures.

Economic analysis can be performed from several different perspectives, based on which party is affected. For planning water use efficiency programs for utilities, perspectives most commonly used for benefit-cost analyses are the “utility” perspective and the “community” perspective. The “utility” benefit-cost analysis is based on the benefits and costs to the water provider. The “community” benefit-cost analysis includes the utility benefit and costs together with account owner/customer benefits and costs. These include customer energy and other capital or operating cost benefits plus costs of implementing the measure beyond what the utility pays.

The utility perspective offers two advantages. First, it considers only the program costs that will be directly borne by the utility. This enables the utility to fairly compare potential investments for saving versus supplying increased quantities of water. Second, revenue shifts are treated as transfer payments, which means program participants will have lower water bills and non-participants will have slightly higher water bills so that the utility’s revenue needs continue to be met. Therefore, the analysis is not complicated with uncertainties associated with long-term rate projections and retail rate design assumptions. It should be noted that there is a significant difference between the utility’s savings from the avoided cost of procurement and delivery of water and the reduction in retail revenue that results from reduced water sales due to water use efficiency. This budget impact occurs slowly and can be accounted for in water rate planning. Because it is the water provider’s role in developing a water use efficiency plan that is vital in this study, the utility perspective was primarily used to evaluate elements of this report.

The community perspective is defined to include the utility and the customer costs and benefits. Costs incurred by customers striving to save water while participating in water use efficiency programs are considered, as well as benefits received in terms of reduced energy bills (from water heating costs) and wastewater savings, among others. Water bill savings are not a customer benefit in aggregate for reasons described previously. Other factors external to the utility, such as environmental effects, are often difficult to quantify or are not necessarily under the control of the utility. They are therefore frequently excluded from economic analyses, including this one.

The time value of money is explicitly considered. Typically, the costs to save water occur early in the planning period whereas the benefits usually extend to the end of the planning period. A long planning period of over 30

years is often used because costs and benefits that occur beyond these 25 years (beyond the year 2045 in this Plan) have very little influence on the total present value of the costs and benefits. The value of all future costs and benefits is discounted to the first year in the DSS Model (the base year) at the real interest rate of 3.01%. The DSS Model calculates this real interest rate, adjusting the current nominal interest rate (assumed to be approximately 6.1%) by the assumed rate of inflation (3.0%).

The formula to calculate the real interest rate is:

(nominal interest rate – assumed rate of inflation) / (1 + assumed rate of inflation)

Cash flows discounted in this manner are herein referred to as "Present Value" sums.

C.4 Measure Cost and Water Savings Assumptions

In City of Milpitas's DSS Model, to evaluate each water conservation measure, assumptions regarding the following variables were made for each measure:

- **Targeted Water User Group End Use** – Water user group (e.g., single family residential) and end use (e.g., indoor or outdoor water use).
- **Utility Unit Cost** – Cost of rebates, incentives, and contractors hired to implement measures. The assumed dollar values for the measure unit costs were closely reviewed by staff and are found to be adequate for each individual measure. The values in most cases are in the range of what is currently offered by other water utilities in the region.
- **Retail Customer Unit Cost** – Cost for implementing measures that is paid by retail customers (i.e., the remainder of a measure's cost that is not covered by a utility rebate or incentive).
- **Utility Administration and Marketing Cost** – The cost to the utility for administering the measure, including consultant contract administration, marketing, and participant tracking. The mark-up is sufficient (in total) to cover conservation staff time, general expenses, and overhead.

Costs are determined for each of the measures based on industry knowledge, past experience, and data provided by Milpitas. Costs may include incentive costs, usually determined on a per-participant basis; fixed costs, such as marketing; variable costs, such as the cost to staff the measures and to obtain and maintain equipment; and a one-time set-up cost. The set-up cost is for measure design by staff or consultants, any required pilot testing, and preparation of materials that are used in marketing the measure. Measure costs are estimated each year through 2045. Costs are spread over the time period depending on the length of the implementation period for the measure and estimated voluntary customer participation levels.

Lost revenue due to reduced water sales is not included as a cost because the water use conservation measures evaluated herein generally take effect over a long span of time. This span is sufficient to enable timely rate adjustments, if necessary, to meet fixed cost obligations and savings on variable costs such as energy and chemicals.

The unit costs vary according to the type of customer account and implementation method being addressed. For example, a measure might cost a different amount for a residential single family account than for a residential multi-family account, and for a rebate versus an ordinance requirement or a direct installation implementation method. Typically, water utilities have found there are increased costs associated with achieving higher market saturation, such as more surveys per year. The DSS Model calculates the annual costs based on the number of participants each year. The general formula for calculating annual utility costs is:

- Annual Utility Cost = Annual market penetration rate x total accounts in category x unit cost per account x (1+administration and marketing markup percentage)
- Annual Customer Cost = Annual number of participants x unit customer cost
- Annual Community Cost = Annual utility cost + annual customer cost

Data necessary to forecast water savings of measures include specifics on water use, demographics, market penetration, and unit water savings. Savings normally develop at a measured and predetermined pace, reaching full maturity after full market penetration is achieved. This may occur 3 to 10 years after the start of implementation, depending upon the implementation schedule.

For every water use efficiency activity or replacement with more efficient devices, there is a useful life. The useful life is called the "Measure Life" and is defined to be how long water use conservation measures stay in place and continue to save water. It is assumed that measures implemented because of codes, standards, or ordinances (e.g., toilets) would be "permanent" and not revert to an old inefficient level of water use if the device needed to be replaced. However, some measures that are primarily behavior-based, such as residential surveys, are assumed to need to be repeated on an ongoing basis to retain the water savings (e.g., homeowners move away, and the new homeowners may have less efficient water using practices). Surveys typically have a measure life on the order of five years.

C.5 National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005, mandates that only fixtures (as listed below) meeting the following standards can be installed in new buildings:

Toilet – 1.6 gal/flush maximum

Urinals – 1.0 gal/flush maximum

Showerhead – 2.5 gal/min at 80 pounds per square inch (psi)

Residential faucets – 2.2 gal/min at 60 psi

Public restroom faucets – 0.5 gal/min at 60 psi

Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act, which mandates that only devices with the specified level of efficiency (as shown above) can be sold as of 2006. The net result of the plumbing code is that new buildings will have more efficient fixtures and old inefficient fixtures will slowly be replaced with new, more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code, the U.S. Department of Energy regulates appliances, such as residential clothes washers, further reducing indoor water demands. Regulations to make these appliances more energy efficient have driven manufactures to dramatically reduce the amount of water these machines use. Generally, front-loading washing machines use 30-50% less water than conventional (top-loading) models, which are still available but are becoming more water efficient.

In this analysis, the DSS Model forecasts a gradual transition to high efficiency clothes washers (using 12 gallons or less) so that by the year 2025 that will be the only type of machine available for purchase. In addition to the industry becoming more efficient, rebate programs for washers have been successful in encouraging customers to buy more water-efficient models. Given that machines last about 10 years, eventually all machines on the market will be the more water-efficient models. Energy Star washing machines have a water factor of 6.0 or less – the equivalent of using 3.1 cubic feet (or 23.2 gallons) of water per load. The maximum water factor for residential clothes washers under current federal standards is 6.5 (equates to approximately 19 gallons per load based on an average 2.9 cubic ft. tub). The water factor equals the number of gallons used per cycle per cubic foot of capacity.

Water Factor (WF) = gallons per load/tub volume

OR

washer capacity (cubic ft.)/average tub volume

Prior to the year 2000, the water factor for a typical new residential clothes washer was around 12 (equates to approximately 35 gallons per load based on an average 2.9 cubic ft. tub). In March 2015, the federal standard reduced the maximum water factor for top- and front-loading machines to 8.4 and 4.7, respectively. In 2018, the maximum water factor for top-loading machines was further reduced to 6.5. For commercial washers, the maximum water factors were reduced in 2010 to 8.5 and 5.5 for top- and front-loading machines, respectively. Beginning in 2015, the maximum water factor for Energy Star certified washers was 3.7 for front-loading and 4.3 for top-loading machines. In 2011, the U.S. Environmental Protection Agency estimated that Energy Star washers comprised more that 60% of the residential market and 30% of the commercial market (Energy Star, 2011). A new Energy Star compliant washer uses about two-thirds less water per cycle than washers manufactured in the 1990s.

C.6 State Plumbing Code

This section describes California state codes applicable to Milpitas's water use.

C.6.1 California State Law – AB 715

Plumbing codes for toilets, urinals, showerheads, and faucets were initially adopted by California in 1991, mandating the sale and use of ultra-low flush toilets (ULFTs) using 1.6 gpf, urinals using 1 gpf, and low-flow showerheads and faucets. AB 715 led to an update to California Code of Regulations Title 20 (see Section C.5.3) mandating that all toilets and urinals sold and installed in California as of January 1, 2014 must be high efficiency versions having flush ratings that do not exceed 1.28 gpf (toilets) and 0.5 gpf (urinals).

C.6.2 California State Laws – SB 407 and SB 837

SB 407 addresses plumbing fixture retrofits on resale or remodel. The DSS Model carefully considers the overlap with SB 407, the plumbing code (natural replacement), CALGreen, AB 715 and rebate programs (such as toilet rebates). SB 407 (enacted in 2009) requires that properties built prior to 1994 be fully retrofitted with water conserving fixtures by the year 2017 for single family residential houses and 2019 for multi-family and commercial properties. SB 407 program length is variable and continues until all the older high flush toilets have been replaced in the service area. The number of accounts with high flow fixtures is tracked to make sure that the situation of replacing more high flow fixtures than actually exist does not occur. Additionally, SB 407 conditions issuance of building permits for major improvements and renovations upon retrofit of non-compliant plumbing fixtures. SB 837 (enacted in 2011) requires that sellers of real estate property disclose on their Real Estate Transfer Disclosure Statement whether their property complies with these requirements. Both laws are intended to accelerate the replacement of older, low efficiency plumbing fixtures, and ensure that only high efficiency fixtures are installed in new residential and commercial buildings.

C.6.3 2019 CALGreen and 2015 CA Code of Regulations Title 20 Appliance Efficiency Regulations

Fixture characteristics in the DSS Model are tracked in new accounts, which are subject to the requirements of the 2019 California Green Building Code and 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the California Energy Commission (CEC) on September 1, 2015. The CEC 2015 appliance efficiency standards apply to the following new appliances, if they are sold in California: showerheads, lavatory faucets, kitchen faucets, metering faucets, replacement aerators, wash fountains, tub spout diverters, public

lavatory faucets, commercial pre-rinse spray valves, urinals, and toilets. The DSS Model accounts for plumbing code savings due to the effects these standards have on showerheads, faucet aerators, urinals, toilets, and clothes washers.

Showerheads – July 2016: 2.0 gallons per minute (gpm); July 2018: 1.8 gpm

Wall Mounted Urinals – January 2016: 0.125 gpf (pint)

Lavatory Faucets and Aerator – July 2016: 1.2 gpm at 60 psi

Kitchen Faucets and Aerator – July 2016: 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi

Public Lavatory Faucets – July 2016: 0.5 gpm at 60 psi

In summary, the controlling law for **toilets** is AB 715, requiring high efficiency toilets of 1.28 gpf sold in California beginning in 2014. The controlling law for wall-mounted urinals is the 2015 CEC efficiency regulations requiring that ultra-high efficiency pint **urinals** (0.125 gpf) be exclusively sold in California beginning January 1, 2016. This is an efficiency progression for urinals from AB 715's requirement of high efficiency (0.5 gpf) urinals starting in 2014.

Standards for **residential clothes washers** fall under the regulations of the U.S. Department of Energy. In 2018, the maximum water factor for standard top-loading machines was reduced to 6.5.

Showerhead flow rates are regulated under the 2015 California Code of Regulations Title 20 Appliance Efficiency Regulations adopted by the CEC, which requires the exclusive sale in California of 2.0 gpm showerheads at 80 psi as of July 1, 2016 and 1.8 gpm showerheads at 80 psi as of July 1, 2018. The WaterSense specification applies to showerheads that have a maximum flow rate of 2.0 gpm or less. This represents a 20% reduction in showerhead flow rate over the current federal standard of 2.5 gpm, as specified by the Energy Policy Act of 1992.

Faucet flow rates likewise have been regulated by the 2015 CEC Title 20 regulations. This standard requires that the residential faucets and aerators manufactured on or after July 1, 2016 be exclusively sold in California at 1.2 gpm at 60 psi; and public lavatory and kitchen faucets/aerators sold or offered for sale on or after July 1, 2016 be 0.5 gpm at 60 psi and 1.8 gpm at 60 psi (with optional temporary flow of 2.2 gpm), respectively. Previously, all faucets had been regulated by the 2010 California Green Building Code at 2.2 gpm at 60 psi.

C.7 Key Baseline Potable Demand Inputs, Passive Savings Assumptions, and Resources

The following tables present the key assumptions and references that are used in the DSS Model in determining projected demands with plumbing code savings. The assumptions having the most dramatic effect on future demands are the natural replacement rate of fixtures, how residential or commercial future use is projected, and the percent of estimated real water losses.

Table C-1. List of Key Assumptions

Parameter	Model Input Value, Assumptions, and Key References
Model Start Year for Analysis	2020
Water Demand Factor Year (Base Year)	2016-2019
Population Projection Source	2020 Department of Finance, 2025-2035 City of Milpitas 2035 General Plan, 2040 Association of Bay Area Governments
Employment Projection Source	2020-2035: 2017 DSS Model 2035-2040: City of Milpitas 2035 General Plan
Avoided Cost of Water	$10,360/MG

Potable Water System Base Year Water Use Profile					
Customer Categories	**Start Year Accounts**	**Total Water Use Distribution**	**Demand Factors (gpd/account)**	**Indoor Use %**	**2020 Residential Indoor Water Use (GPCD)**
Single Family	11,879	33.1%	216	72%	43
Multi-Family	1,851	21.1%	879	97%	44
Commercial	554	15.7%	2,189	92%	N/A
Industrial	277	13.3%	3,717	87%	N/A
Institutional	32	3.4%	8,354	77%	N/A
Irrigation	505	11.3%	1,732	0%	N/A
City	117	2.0%	1,302	38%	N/A
Total/Avg	**15,254**	**100%**	**N/A**	**N/A**	**N/A**

Table C-2. Key Assumptions Resources

Parameter	Resource
Residential End Uses	Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study," (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses) and AWWA Research Foundation (AWWARF) Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition. 2013. http://www.map-testing.com/assets/files/PERC%20Report_Final_Phase%20One_Nov%202011_v1.1.pdf Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.
Non-Residential End Uses, percent	Key Reference: AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "End Uses" section of the DSS Model on the "Breakdown" worksheet.
Efficiency Residential Fixture Current Installation Rates	U.S. Census, housing age by type of dwelling plus natural replacement plus rebate program (if any). Key Reference: GMP Research, Inc. (2019). 2019 U.S. WaterSense Market Penetration Industry Report. Key Reference: Consortium for Efficient Energy (www.cee1.org). Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.
Water Savings for Fixtures, gal/capita/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Key Reference: CA DWR Report "California Single Family Water Use Efficiency Study" (DeOreo, 2011 – Page 28, Figure 3: Comparison of household end-uses). Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Non-Residential Fixture Efficiency Current Installation Rates	Key Reference: 2010 U.S. Census, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Assume commercial establishments built at same rate as housing, plus natural replacement. California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Santa Clara Valley Water District Water Use Efficiency Unit. "SCVWD CII Water Use and Baseline Study." February 2008. Model Input Values are found in the "Codes and Standards" green section of the DSS Model by customer category fixtures.

Residential Frequency of Use Data, Toilets, Showers, Faucets, Washers, Uses/user/day	Key Reference: AWWARF Report "Residential End Uses of Water, Version 2 - 4309" (DeOreo, 2016). Summary values can be found in the full report: https://www.waterrf.org/research/projects/residential-end-uses-water-version-2 Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Key Reference: Alliance for Water Efficiency, The Status of Legislation, Regulation, Codes & Standards on Indoor Plumbing Water Efficiency, January 2016. Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Non-Residential Frequency of Use Data, Toilets, Urinals, and Faucets, Uses/user/day	Key References: Estimated based on AWWARF Report "Commercial and Institutional End Uses of Water" (Dziegielewski, 2000 – Appendix D: Details of Commercial and Industrial Assumptions, by End Use). Key Reference: California Energy Commission, Staff Analysis of Toilets, Urinals and Faucets, Report # CEC-400-2014-007-SD, 2014. Fixture uses over a 5-day work week are prorated to 7 days. Non-residential 0.5gpm faucet standards per Table 2-A. Water Consumption by Water-Using Plumbing Products and Appliances - 1980-2012. PERC Phase 1 Report. Plumbing Efficiency Research Coalition, 2012. http://www.map-testing.com/assets/files/PERC%20Report_Final_Phase%20One_Nov%202011_v1.1.pdf Model Input Values are found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model and confirmed in each "Service Area Calibration End Use" worksheet by customer category.
Natural Replacement Rate of Fixtures (percent per year)	Residential Toilets 2%-4%
	Non-Residential Toilets 2%-3%
	Residential Showers 4% (corresponds to 25-year life of a new fixture)
	Residential Clothes Washers 10% (based on 10-year washer life). Key References: "Residential End Uses of Water" (DeOreo, 2016) and "Bern Clothes Washer Study, Final Report" (Oak Ridge National Laboratory, 1998).
	Residential Faucets 10% and Non-Residential Faucets 6.7% (every 15 years). CEC uses an average life of 10 years for faucet accessories (aerators). A similar assumption can be made for public lavatories, though no hard data exists and since CII fixtures are typically replaced less frequently than residential, 15 years is assumed. CEC, Analysis of Standards Proposal for Residential Faucets and Faucet Accessories, a report prepared under CEC's Codes and Standards Enhancement Initiative, Docket #12-AAER-2C, August 2013.
	Model Input Value is found in the "Codes and Standards" green section on the "Fixtures" worksheet of the DSS Model.
Residential Future Water Use	Increases Based on Population Growth and Demographic Forecast
Non-Residential Future Water Use	Increases Based on Employment Growth and Demographic Forecast

C.7.1 Fixture Estimates

Determining the current level of efficient fixtures in a service area while evaluating the passive savings in the DSS Model is part of the standard process and is called "initial fixture proportions." MWM reconciled water-efficient fixtures and devices installed within the Milpitas service area and estimated the number of outstanding inefficient fixtures.

MWM used the DSS Model to perform a saturation analysis for toilets, urinals, showerheads, faucets, and clothes washers. The process included a review of age of buildings from census data, number of rebates per device, and assumed natural replacement rates. MWM presumed the fixtures that were nearing saturation and worth analysis would include residential toilets and residential clothes washers, as both have been included in recommended water use efficiency practices for over two decades.

In 2014, the Water Research Foundation updated its 1999 Residential End Uses of Water Study (REUWS). Water utilities, industry regulators, and government planning agencies consider it the industry benchmark for single family home indoor water use. This incorporates recent study results that reflect the change to the water use profile in residential homes including adoption of more water-efficient fixtures over the 15 years that transpired from 1999 to 2014. REUWS results were combined with Milpitas historical rebate and billing data to enhance and verify assumptions made for all customer accounts, including saturation levels on the above-mentioned plumbing fixtures.

The DSS Model presents the estimated current and projected proportions of these fixtures by efficiency level within Milpitas's service area. These proportions were calculated by:

- Using standards in place at the time of building construction,
- Taking the initial proportions of homes by age (corresponding to fixture efficiency levels),
- Adding the net change due to natural replacement, and
- Adding the change due to rebate measure minus the "free rider effect."

Further adjustments were made to initial proportions to account for the reduction in fixture use due to lower occupancy and based on field observations. The projected fixture proportions do **not** include any future active water use efficiency measures implemented by the City. More information about the development of initial and projected fixture proportions can be found in the DSS Model "Codes and Standards" section.

The DSS Model is capable of modeling multiple types of fixtures, including fixtures with different designs. For example, currently toilets can be purchased that flush at a rate of 0.8 gpf, 1.0 gpf or 1.28 gpf. The 1.6 gpf and higher toilets still exist but can no longer be purchased in California. Therefore, they cannot be used for replacement or new installation of a toilet. So, the DSS Model utilizes fixture replacement rates to determine what type of fixture should be used for a new construction installation or replacement. The replacement of the fixtures is listed as a percentage within the DSS Model. A value of 100% would indicate that all the toilets installed would be of one particular flush volume. A value of 75% means that three out of every four toilets installed would be of that particular flush volume. All the Fixture Model information and assumptions were carefully reviewed and accepted by City staff.

The DSS Model provides inputs and analysis of the number, type, and replacement rates of fixtures for each customer category (e.g., single family toilets, commercial toilets, residential clothes washing machines.). For example, the DSS Model incorporates the effects of the 1992 Federal Energy Policy Act and AB 715 on toilet fixtures. A DSS Model feature determines the "saturation" of 1.6 gpf toilets as the 1992 Federal Energy Policy Act was in effect from 1992-2014 for 1.6 gpf toilet replacements. AB 715 now applies for the replacement of toilets at 1.28 gpf. Further consideration and adjustments were made to replacement rates to account for the reduction in fixture use and wear, due to lower occupancy and based on field observations.

APPENDIX D – NOTICE OF INTENT TO UPDATE UWMP

From: Milpitas Works <milpitasworks@ci.milpitas.ca.gov>
Sent: Tuesday, February 23, 2021 9:55 AM
To: <*email list removed due to space and privacy issues*>
Subject: City of Milpitas - Notice of Preparation of 2020 Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update

Subject: City of Milpitas - Notice of Preparation of 2020 Urban Water Management Plan and Water Shortage Contingency Plan - 2020 Update

Dear Water Suppliers,

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Milpitas ("the City") to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. The City of Milpitas 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 to the California Department of Water Resources by July 1, 2021. We invite your agency's participation in this revision process.

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

Sincerely,

Tony Ndah
Director of Public Works
City of Milpitas
Phone: (408) 586-2600
milpitasworks@ci.milpitas.ca.gov

APPENDIX E – NOTICE OF PUBLIC HEARING

From: Milpitas Works <milpitasworks@ci.milpitas.ca.gov>
Sent: Wednesday, May 26, 2021 11:33 AM
To: *<email list removed due to space and privacy issues>*
Subject: City of Milpitas - Notice of Public Hearing for the 2020 Urban Water Management Plan and Water Shortage Contingency Plan

Dear Water Suppliers,

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Milpitas ("the City") to update its Urban Water Management Plan (UWMP) and associated Water Shortage Contingency Plan (WSCP) every 5 years. As part of the 2020 UWMP, the City expanded its Water Shortage Contingency Plan (WSCP) to be a standalone document to establish actions and procedures for managing water shortages. The UWMP and WSCP are required to be submitted to the California Department of Water Resources by July 1, 2021.

The City will hold a public hearing on June 15, 2021 at 7:00 p.m. by virtual meeting to consider proposed revisions and updates to the UWMP and associated WSCP. We invite your agency's participation in the process.

The UWMP and associated WSCP will be made available for public review by June 1, 2021 at https://www.ci.milpitas.ca.gov/2020_uwmp. Please visit http://www.ci.milpitas.ca.gov/our-government/city-council/city-council-agendas-and-minutes-2/ for the City Council meeting agenda and 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 me.

Sincerely,

Tony Ndah
Director of Public Works
City of Milpitas
Phone: (408) 586-2600
milpitasworks@ci.milpitas.ca.gov

Notice of Public Hearing
City of Milpitas 2020 Urban Water Management Plan

NOTICE IS HEREBY GIVEN that the Milpitas City Council will hold a public hearing via teleconference/zoom webinar on Tuesday, June 15, 2021, starting at or soon after 7:00 p.m. to receive public comment regarding adoption of the 2020 Urban Water Management Plan (UWMP).

The 2020 UWMP is a water supply planning tool describing the service area, the existing and planned sources, existing and planned customer demands, a comparison of actual water usage against State-mandated per capita water use targets, and the Water Shortage Contingency Plan. The 2020 UWMP is available for public review and comment through the end of the public hearing described above. A copy of the 2020 UWMP is accessible on the City's website:

https://www.ci.milpitas.ca.gov/2020_uwmp/

NOTICE IS FURTHER GIVEN, pursuant to CA Government Code Section 65009, that any legal challenge of this matter in court may be limited to only those issues raised at the public hearing described in this notice or in written or e-mailed correspondence delivered to the City Council at, or prior to, thepublic hearing. Challenges shall also be in compliance with Water Code Sections 10650-10656.

ANY PERSONS who wish to comment are encouraged to attend the online public hearing where oral comments may be given by registering for the zoom webinar as attendee (see meeting agenda) or to submit written comments via e-mail to the City Council prior to the hearing. The City encourages the active involvement of the diverse social, cultural, and economic elements of the population within the service area. Written comments may be sent by e-mail to wwood@ci.milpitas.ca.gov.

Wendy Wood
City Clerk
Publication Dates: May 28 and June 4, 2021

APPENDIX F – ADOPTION RESOLUTION

RESOLUTION NO. 9086

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MILPITAS ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN

WHEREAS, on September 21, 1983, the State of California enacted Assembly Bill 797 (Wat. Code § 10610, et seq.), known as the "Urban Water Management Planning Act," which, as amended, required that urban retail suppliers of potable water for municipal purposes serving more than 3,000 customers or retailing more than 3,000 acre feet of water annually, adopt Urban Water Management Plans by December 31, 1985, and every five years on or before July 1, in years ending in six and one thereafter adopt updated plans for the conservation and efficient use of water; and

WHEREAS, in 1985 the City of Milpitas ("City") provided municipal water to a population of over 40,000 (now over 72,000) and supplied over 6,000 acre feet of water annually (now over 8,700 acre feet), it adopted Urban Water Management Plans on December 17, 1985; June 4, 1991 as amended April 1994; March 19, 1996; January 16, 2001; December 6, 2005; and June 7, 2011; and June 7, 2016; and

WHEREAS, pursuant to recent amendments to the Urban Water Management Planning Act, urban water suppliers are required to update and electronically submit their 2020 Urban Water Management Plans to the California Department of Water Resources (DWR) by July 1, 2021; and

WHEREAS, on November 10, 2009, the State of California enacted Senate Bill 7 (SB X7-7) (Wat. Code § 10608 et seq.), known as the "Water Conservation Act of 2009," which defines an "urban retail water supplier" as a water supplier that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre feet of potable water annually at retail for municipal purposes, and an "urban wholesale water supplier" is defined as a water supplier that provides more than 3,000 acre feet of water annually at wholesale for potable municipal purposes; and

WHEREAS, the City meets the definition of an urban retail water supplier for purposes of the Urban Water Management Planning Act and SB X7-7; and

WHEREAS, SB X7-7 required 20 percent reduction of urban per capita water use by December 31, 2020, required water suppliers to include in their 2010 Urban Water Management Plans per capita daily water use target values to achieve 20 percent water use reduction, and allowed water suppliers to update the 2020 urban water use targets in their 2015 Urban Water Management Plan; and

WHEREAS, the 2010 Urban Water Management Plan established the 2020 per capita daily water use target via Method 1 – "Gross Water Use Method," as developed by the California Department of Water Resources, which required the City's 2020 per capita water consumption rate to be 80 percent of its baseline per capita water use, determined that the City's baseline, as averaged over the ten-year period from July 1, 1995 to June 30, 2004, was 176 gallons per day, and therefore found that the target per capita water use for the year 2020 was 141 gallons per day; and

WHEREAS, the 2015 Urban Water Management Plan uses a calendar year basis of January 1, 1995 to December 31, 2004 to calculate the 2015 and 2020 per capita water use targets to be consistent with calendar year convention throughout the Urban Water Management Plan, resulting in a baseline usage of 183 gallons per day per capita (gpdpc) and 2015 and 2020 targets of 159 and 146 gpdpc; and

WHEREAS, as the City's per capita use is currently 108 gallon per day, a consumption rate lower than the 2020 target water use; and

WHEREAS, the City has prepared a 2020 Urban Water Management Plan in accordance with the Urban Water Management Planning Act and SB X7-7, and in accordance with applicable legal requirements, has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its 2020 Urban Water Management Plan; and

WHEREAS, the 2020 Urban Water Management Plan describes the City's service area, existing and planned sources of water, reliability of the supply, water demand and use projections, water conservation and demand management measures, water shortage contingency analysis, and recycled water use; and

WHEREAS, in accordance with the Urban Water Management Planning Act and SB X7-7, City has prepared its 2020 Urban Water Management Plan with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its 2020 Urban Water Management Plan, and has also utilized DWR's Urban Water Management Plan Guidebook 2020, including its related appendices, in preparing its 2020 Urban Water Management Plan; and

WHEREAS, the said Urban Water Management Plan incorporates the City's current water conservation program consisting of policies, practices, and regulations that may be expected to continue yielding increased per capita water savings as higher-density housing is developed in accordance with water conservation requirements; and

WHEREAS, pursuant to said public hearing on City's 2020 Urban Water Management Plan, the City, among other things, encouraged the active involvement of diverse social, cultural, and economic sectors of the population within the City's retail water service area with regard to the 2020 Urban Water Management Plan and encouraged community input regarding City's 2020 Urban Water Management Plan; and

WHEREAS, the City prepared the 2020 Urban Water Management Plan in coordination with other appropriate agencies, including other suppliers sharing common sources, regional water management agencies, and relevant public agencies, to the extent practicable; and

WHEREAS, in accordance with applicable law, including Water Code sections 10608.26 and 10642, and Government Code section 6066, a Notice of a Public Hearing regarding City of Milpitas' 2020 Urban Water Management Plan was published within the jurisdiction of the City on May 28, 2021 and June 4, 2021; and

WHEREAS, the City has provided notice to the public of its intent to adopt the 2020 Urban Water Management Plan, has made the draft plan available for public review, and has encouraged the public to provide comment; and

WHEREAS, in accordance with applicable law, including but not limited to Water Code sections 10608.26 and 10642, the City properly noticed and held a public hearing on June 15, 2021, in order to provide members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the 2020 Urban Water Management Plan and issues related thereto; and

WHEREAS, the City has reviewed and considered the purposes and requirements of the Urban Water Management Planning Act and SB X7-7, the contents of the 2020 Urban Water Management Plan, and the documentation contained in the administrative record in support of the 2020 Urban Water Management Plan, and has determined that the factual analyses and conclusions set forth in the 2020 Urban Water Management Plan are legally sufficient; and

WHEREAS, the City Council desires to adopt the 2020 Urban Water Management Plan prior to July 1, 2021 in order to comply with the Act and SB X7-7; and

WHEREAS, Section 10652 of the California Water Code provides that the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) (CEQA) does not apply to the preparation and adoption of the 2020 Urban Water Management Plan.

NOW, THEREFORE, the City Council of the City of Milpitas hereby finds, determines, and resolves as follows:

1. The City Council has considered the full record before it, which may include but is not limited to such things as the staff report, testimony by staff and the public, and other materials and evidence submitted or provided to it. The custodian for these records is the City Clerk. Furthermore, the recitals set forth above are found to be true and correct and are incorporated herein by reference.

2. The City Council finds and determines that, under California Water Code Section 10652, the adoption of the Urban Water Management Plan and this resolution does not constitute a project under the California Environmental Quality Act, and no environmental assessment is required. Pursuant to CEQA, the City Council directs staff to file a Notice of Exemption with the County Clerk within five (5) working days of adoption of this resolution.

3. The 2020 Urban Water Management Plan, which replaces the 2015 Urban Water Management Plan, is hereby adopted and ordered filed with the City Clerk.

4. The City of Milpitas' 2020 Urban Water Management Plan, attached hereto as Exhibit A, is hereby adopted as amended by changes incorporated by the City Council as a result of input received (if any) at the public hearing and ordered filed with the City Clerk.

5. The City Manager is hereby authorized and directed to include a copy of this Resolution in City of Milpitas' 2020 Urban Water Management Plan.

6. The City Manager, or his designee, is hereby authorized and directed to file the Plan, in accordance with Water Code sections 10621(d) and 10644(a)(1)-(2), to electronically submit a copy of the 2020 Urban Water Management Plan to the California Department of Water Resources no later than July 1, 2021.

7. The City Manager, or his designee, is hereby authorized and directed, in accordance with Water Code section 10644(a), to submit a copy of the 2020 Urban Water Management Plan to the California State Library, and any city of county within which the City of Milpitas provides water supplies no later than thirty (30) days after this adoption date.

8. The City Manager, or his designee, is hereby authorized and directed, in accordance with Water Code section 10645, to make the 2020 Urban Water Management Plan available for public review at the City of Milpitas' offices during normal business hours or on the City of Milpitas' website no later than thirty (30) days after filing a copy of the 2020 Urban Water Management Plan with California Department of Water Resources .

9. The City Manager, or his designee, is hereby authorized and directed, in accordance with Water Code Section 10635(c), to provide that portion of the 2020 Urban Water Management Plan prepared pursuant to Water Code Section 10635(a)-(b) to any city or county within which City of Milpitas provides water supplies no later than sixty (60) days after submitting a copy of the 2020 Urban Water Management Plan with California Department of Water Resources .

10. The City Manager, or his designee, is hereby authorized and directed to implement the Water Conservation Program set forth in the 2020 Urban Water Management Plan in accordance with the Urban Water Management Planning Act and SB X7-7 , which includes procedures, rules, and regulations to carry out effective and equitable water conservation and water recycling programs and to provide recommendations to the City Council regarding the necessary budgets, procedures, rules, regulations, or further actions to carry out the effective and equitable implementation of the 2020 Urban Water Management Plan.

PASSED AND ADOPTED this 15th day of June 2021, by the following vote:

AYES: (5) Mayor Tran, Vice Mayor Montano, Councilmembers Chua, Dominguez, and Phan

NOES: (0) None

ABSENT: (0) None

ABSTAIN: (0) None

ATTEST:

Wendy Wood, City Clerk

APPROVED:

Rich Tran, Mayor

APPROVED AS TO FORM:

Christopher J. Diaz, City Attorney

APPENDIX G – DOCUMENTATION OF 2020 UWMP AND WSCP SUBMITTALS

Documentation pending. It will be included in the Final Draft of this 2020 UWMP.

APPENDIX H – SB X7-7 2020 COMPLIANCE FORM

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	77,961
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	3,073	-	-	-	-	-	**3,073**
* **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	San Francisco Public Utilities Commission
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
	2,159	-	2,159

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

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

NOTES

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

Complete one table for each source.

Name of Source	Valley Water
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
	914		914

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

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

NOTES:

SB X7-7 Table 4-B: 2020 Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*									
2020 Compliance Year	**2020 Surface Reservoir Augmentation**					**2020 Groundwater Recharge**			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
	Volume Discharged from Reservoir for Distribution System Delivery[1]	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss[1]	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility[1,2]	Transmission/ Treatment Losses[1]	Recycled Volume Entering Distribution System from Groundwater Recharge	
	-	0%	-	-	-	-	-	-	-

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

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C: 2020 Process Water Deduction Eligibility (For use only by agencies that are deducting process water) Choose Only One	
☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☐	**Criteria 4** - Disadvantaged Community. Complete SB x7-7 Table 4-C.4
NOTES: This table is not applicable to City of Milpitas	

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.1: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 1)*

Criteria 1
Industrial water use is equal to or greater than 12% of gross water use

2020 Compliance Year	2020 Gross Water Use Without Process Water Deduction	2020 Industrial Water Use	Percent Industrial Water	Eligible for Exclusion Y/N
	3,073	355	12%	NO

NOTES:

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.2: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 2)*

Criteria 2
Industrial water use is equal to or greater than 15 GPCD

2020 Compliance Year	2020 Industrial Water Use	2020 Population	2020 Industrial GPCD	Eligible for Exclusion Y/N
	355	77,961	12	NO

NOTES:

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.3: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 3)*

Criteria 3
Non-industrial use is equal to or less than 120 GPCD

2020 Compliance Year	2020 Gross Water Use Without Process Water Deduction *Fm SB X7-7 Table 4*	2020 Industrial Water Use	2020 Non-industrial Water Use	2020 Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
	3,073	355	2,718	77,961	96	YES

NOTES:

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.4: 2020 Process Water Deduction Eligibility ***(For** use only by agencies that are deducting process water using Criteria 4)*

Criteria 4

Disadvantaged Community. A "Disadvantaged Community" (DAC) is a community with a median household income less than 80 percent of the statewide average.

SELECT ONE

"Disadvantaged Community" status was determined using one of the methods listed below:

1. IRWM DAC Mapping tool https://gis.water.ca.gov/app/dacs/

☐	If using the IRWM DAC Mapping Tool, include a screen shot from the tool showing that the service area is considered a DAC.

2. 2020 Median Income

	California Median Household Income*		Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
☑	**2020**	**$75,235**	$105,500	140%	NO

*California median household income 2015 -2019 as reported in US Census Bureau QuickFacts.

NOTES: Service area median household income is four-person household in Santa Clara County in 2013 per the City of Milpitas April 2015 Housing Element Update 2015-2023

Data from these tables will not be entered into WUEdata.
Instead, the entire tables will be uploaded to WUEdata as a separate upload in Excel format.

This table(s) is only for Suppliers that deduct process water from their 2020 gross water use.

SB X7-7 Table 4-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer	*Enter Name of Industrial Customer 1*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-

*** 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 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**
3,073	77,961	**108**

NOTES:

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD [1]	Optional Adjustments to 2020 GPCD (Enter "0" if Adjustment Not Used)			TOTAL Adjustments [1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Extraordinary Events[1]	Weather Normalization [1]	Economic Adjustment [1]				
108	-	-	-	-	108	146	**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:

APPENDIX I – WATER SHORTAGE CONTINGENCY PLAN

Due to the length of the Water Shortage Contingency Plan, it is included as a separate document.

Important contact information

City contacts

City of Milpitas
455 E Calaveras Blvd.
Milpitas, CA 95035
(408) 586-3000; TDD (408) 586-2643
www.ci.milpitas.ca.gov

Hours of operation
8 a.m. to 5 p.m., M–F

Water Emergencies
(408) 586-2600, Business Hours
(408) 586-2400, After Hours

Billing Questions
(408) 586-3100

Water Conservation Hotline
(408) 586-2666

SCVWD Pollution Hotline
(888) 510-5151 (24 Hours)

Resources

Division of Drinking Water
waterboards.ca.gov/drinking_water/
(510) 620-3474

US EPA
water.epa.gov
(800) 426-4791

Department of
Water Resources
www.water.ca.gov

Bay Area Water Supply and
Conservation Agency
bawsca.org

American Water Works
Association
awwa.org or DrinkTap.org

SCVWD valleywater.org
SFPUC sfwater.org

More information

For more information about this report or the City's water quality monitoring program, please contact:
City of Milpitas Public Works Department at
(408) 586-2600; MilpitasCCR@ci.milpitas.ca.gov

How to get involved

City Council meetings are typically held on the first and third Tuesday of every month at 7:00 pm in the City Hall Council Chambers located at 455 E. Calaveras Blvd. Prior to each meeting, Council meeting agendas can be found posted at City Hall and can also be downloaded from the City website: www.ci.milpitas.ca.gov.

COVID-19 and Drinking Water

First, be assured the COVID-19 Virus is not impacting the safety of your drinking water supply, or our ability to supply water ot the City of Milpitas. The World Health Organization has stated that the "presence of COVID-19 virus has not been detected in drinking-water supplies and based on our current evidence, the risk to water supplies is low". The City of Milpitas is continuing to monitor the COVID-19 emergency to ensure we continue our essential work in providing safe, clean water for our community.

CITY OF MILPITAS 2019 Water Quality Report

City of Milpitas
455 E. Calaveras Blvd.
Milpitas, CA 95035
www.ci.milpitas.ca.gov

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

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

Ito ay isang mahalagang impormasyon tungkol sa inyong iniinom na tubig. Isaling-wika ito, o makipag-usap sa isang tao na naiintindihan ito.

Chi tiết này thật quan trọng. Xin nhờ người dịch cho quý vị.

此份有關你的食水報告 內有重要資料和訊息 請找他人為你翻譯及解釋清楚。

यह महत्वपूर्ण जानकारी आपके पीने के पानी के बारे में है। इसका अनुवाद करें, या किसी ऐसे व्यक्ति से बात करें जो इसे समझता हो।

Frequently asked questions

Why is my water brown or not clear?

Stagnant water sitting in aging plumbing may become brown. This should clear up once sitting water is flushed out from the pipes and replaced with fresh water. Brown water could also be from blocked or clogged sink fixture aerators. Aerators are located at the end of a fixture and can be removed and flushed to clear any debris. Once flushed, hand-tighten to reassemble.

Is there fluoride in the water?

The City receives fluoridated water from SFPUC and SCVWD. SFPUC has been fluoridating water since 1995 while SCVWD began fluoridation in December of 2016.

Why has my water pressure dropped suddenly?

Depending on your location, you could receive water pressure between 40 to 140 psi. Water pressure could have dropped for a variety of reasons. If your water pressure drops unexpectedly, please call Milpitas Public Works Department at (408) 586-2600. You can also check for clogged strainers and proper operation of any pressure regulators (setting).

How can I treat my drinking water after a disaster?

If you run out of stored drinking water, strain and treat water from your water heater or toilet reservoir tank (except if you use toilet tank cleaners.) You cannot drink swimming pool or spa water, but it can be used for flushing toilets or washing.

Strain large particles by pouring water through a couple of layers of paper towels or clean cloth. Purify the water by:

- Boiling. Bring to a rolling boil and maintain for 3-5 minutes. To improve the taste, pour it back and forth between two clean containers to add oxygen back into the water.
- Disinfecting. If the water is clear, add 8 drops of bleach per gallon of water. If it is cloudy, add 16 drops. Shake or stir, then let stand for 30 minutes. A slight chlorine taste and smell is to be expected.

What is the state of the drought and what is "Making Water Conservation A California Way of Life"?

On April 7, 2017, Governor Brown issued Executive Order B-40-17, terminating the January 17, 2014 drought State of Emergency for most counties in California. The Order does however direct the Water Board to continue "Making Water Conversation a California Way of Life" and keep certain restrictions to prohibit wasteful practices. These restrictions along with additional water conservation measures set by the City include:

- Apply only as much water as your landscape needs to prevent water runoff onto streets and sidewalks.
- Wash vehicles with a hose that has a shut-off nozzle.
- Use a broom to clean driveways and sidewalks.
- Recirculate potable water in fountains or decorative water features.
- Do not water landscapes during or within 48 hours of measureable rainfall.
- Restaurants to only serve drinking water upon request.
- Guests of hotels and motels can choose not to have towels and linens laundered daily.
- Pools and spas must be covered when not in use to prevent evaporation.

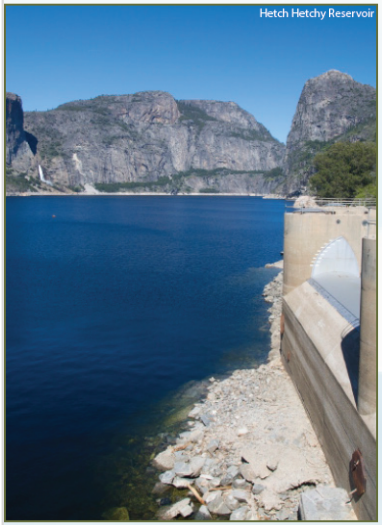
Visit www.savewatermilpitas.org for water conservation tips and water use schedules.

How can I prepare for an emergency?

In a disaster or emergency situation, water supplies may be cut off or contaminated. Store enough water to supply everyone in your family for at least 3-5 days. For general drinking purposes, store one gallon of water per person per day and three gallons of water per person per day for limited cooking and personal hygiene use. If you store tap water, use food grade plastic containers. Replace water at least once every six months. If you buy bottled "spring" or "drinking" water, keep it in its original container. Label bottles with their replacement date and store in a cool, dark place.

In Calendar Year 2019, your tap water met all USEPA and State drinking water health standards.

Our drinking water and how we protect it


Hetch Hetchy Reservoir

The City of Milpitas draws water from two sources that provide clean water to residents and businesses. The water is purchased from two separate wholesalers: treated surface water from the San Francisco Public Utilities Commission (SFPUC) and treated surface water from the Santa Clara Valley Water District (SCVWD). In the event that water supply is interrupted from either SCVWD or SFPUC, the City has the option of utilizing its emergency supply to meet basic water needs for a short duration of time. In 2019, the City supplied an average of 7.1 million gallons of water per day to approximately 16,700 homes and businesses for indoor and outdoor use.

Recycled Water – providing drought-proof, high quality water for our community

In 2019, irrigation and industrial customers in Milpitas used 300 million gallons of recycled water, thereby conserving an equal amount of potable drinking water. Recycled water from the San Jose/Santa Clara Water Pollution Control Plant undergoes an extensive treatment process (including filtration and disinfection) and is delivered to landscape irrigation and industrial customers in Milpitas, San Jose, and Santa Clara. For more information pertaining to recycled water, visit www.sanjoseca.gov/sbwr.

SFPUC Supply

SFPUC water is a combination of Hetch Hetchy water and treated local water. Most of SFPUC's water is sourced from the Hetch Hetchy watershed located in the Sierra Nevada Mountains. This water is exempt from filtration requirements by the United States Environmental Protection Agency (USEPA) and State Water Resources Control Boards' Division of Drinking Water (DDW), due to the protected Sierra spring snow melt water source. Local water is collected within the Alameda watershed at Calaveras Reservoir and San Antonio Reservoir. Local water is treated through filtration and disinfection at the Sunol Valley Water Treatment Plant.

SCVWD Supply

SCVWD water is sourced primarily from the Sacramento-San Joaquin Delta watershed via the South Bay Aqueduct, Dyer Reservoir, Lake Del Valle, and San Luis Reservoir. The water supply is supplemented by local water sources at Anderson and Calero Reservoirs. SCVWD water is treated through filtration and disinfection at Penitencia and Santa Teresa Water Treatment Plants.

Emergency Supplies

The City does not blend or combine SFPUC and SCVWD waters under normal operating conditions. However, the service areas can be interconnected to provide emergency water supply if needed. The City's water system is also interconnected with the Alameda County Water District to the north and San Jose Water Company to the south. In the event that there is an emergency, either or both agencies can provide water to the City. SFPUC and SCVWD share an intertie that can supply water from one wholesaler to the other. The City can also provide temporary emergency water supply using Pinewood Well, located in the southwestern portion of the City.

Drinking Water Source Assessment Program

Drinking Water Source Assessment Programs evaluate the vulnerability of water sources to potential contamination. Both SFPUC and SCVWD have conducted drinking water source assessments for the City's potable water supplies. The assessments are available for review at the State Water Resources Control Board (SWRCB) – Division of Drinking Water District Office. You may request that a summary of the assessments be sent to you by calling (510) 620-3474.

SFPUC conducts an annual watershed sanitary survey for the Hetch Hetchy source as well as five year sanitary surveys for local water sources. These surveys evaluate the sanitary condition, water quality, potential contamination sources, and the results of watershed management activities. The surveys were completed with support from partner agencies, including the National Park Service and US Forest Service. These surveys have identified wildlife, stock, and human activities as potential contamination sources.

SCVWD's water sources are vulnerable to potential contamination from a variety of land use practices, such as agricultural and urban runoff, recreational activities, livestock grazing, and residential and industrial development. The imported sources are also vulnerable to wastewater treatment plant discharges, seawater intrusion, and wild fires in open space areas. In addition, local sources are also vulnerable to potential contamination from commercial stables and historic mining practices. No contaminants associated with any of these activities have been detected in SCVWD's treated water. The water treatment plants provide multiple barriers for physical removal and disinfection of contaminants.

Contaminants and Regulations

To ensure that tap water is safe to drink, the United States Environmental Protection Agency (USEPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

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

- 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, that 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 that can be naturally-occurring or be the result of oil and gas production and mining activities.

Maintaining water quality

The City is dedicated to maintaining the water quality and protecting the water supply. The safegaurds include a combination of preventative and monitoring practices described below.

Hydrant and Water Main Flushing. Flushing of fire hydrants and water mains is performed to remove sediment and keep the distribution system refreshed by circulating water in pipes that would otherwise remain stagnant. As a result, residents in the immediate vicinity may experience temporary discoloration in their water. This discoloration does not affect the safety of the water. If you experience discoloration in your water after City crews have been flushing in your neighborhood, clear the water from your house plumbing by running water faucets for a few minutes prior to use.

Backflow Testing. A backflow preventer is a plumbing device that keeps the water supply safe by preventing water on private property from flowing back into the City's distribution system. Backflow devices are required to be tested annually to ensure they are working properly

Water Sampling. Sampling of the water system is performed in accordance to State and Federal rules and regulations. This requires purging of the water line for a sample to be lab tested. See the third page of this CCR for water quality sampling results.

Littering is throwing it all away

Nearly 80 percent of the debris found in our watersheds, creeks, shorelines, and the South San Francisco Bay is washed, blown, or dumped by humans residing in the vicinity of the water shed. One piece of litter can end up miles from where it was improperly discarded, polluting our water systems and causing a threat to wildlife. The primary sources of litter are: pedestrians, motorists, trucks with uncovered loads, household trash handling and its placement at the curb, loading docks, and demolition sites.

Because we live in a watershed, our community's litter makes a very big impact. A watershed is a land area that drains water into a creek, river, lake, wetland, bay or groundwater aquifer. In the Santa Clara Valley, the water from rain and irrigation (called runoff) picks up litter and carries it directly into storm drains and creeks that flow to San Francisco Bay.

You Can Make a Difference

- Don't litter, ever. Something as small as a cigarette butt thrown on a city street has long term adverse effects on the environment.
- When you see litter, pick it up and dispose of it properly.
- Secure and cover all truckloads of loose debris.
- Make sure your trash can lid is closed securely.
- Always bring a bag for trash when picnicking, hiking, or camping.
- If you own a business, check your dumpster on a regular basis, keep it locked and protect it from illegal dumping.
- Report illegal dumping to the Milpitas Police Department at (408) 586-2400. For solid waste and street sweeping services, call Milpitas Sanitation at (408) 988-4500.
- Call the Santa Clara Countywide Recycling Hotline at (800) 533-8414 or visit www.reducewaste.org to find out where to dispose of or donate large commercial items such as furniture, appliances, etc.

APPENDIX K – APRIL 1, 2021, UPDATED DROUGHT ALLOCATIONS BASED ON SFPUC 3.30.21 LETTER

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**	

APPENDIX L – APRIL 8, 2021, ATTACHMENT B – UPDATED 2020 UWMP DROUGHT CUTBACKS

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: 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%	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: 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%	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: 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)	
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: 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)	
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

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**	**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**