APPENDIX J
Water Supply Assessment

DRAFT WATER SUPPLY ASSESSMENT

FOR THE

MOFFETT PARK SPECIFIC PLAN UPDATE (MPSP) PROJECT

Prepared by

CITY OF SUNNYVALE

Sunnyvale

and

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

September 2022

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MOFFETT PARK SPECIFIC PLAN UPDATE (DSP) PROJECT

Prepared by

CITY OF SUNNYVALE

Sunnyvale

City Council

Larry Klein, Mayor
Alysa Cisneros, Vice Mayor
Gustav Larsson
Glenn Hendricks
Russ Melton
Omar Din
Tony Spitaleri

and

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
4699 OLD IRONSIDES RD, SUITE 350
SANTA CLARA, CA 95054

September 2022

For Review Only

Leif M. Coponen, P.E.
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Table i. Acronyms Used in this Report

Acronym	Description
AFY, ac-ft/yr	Acre-feet/year
ccf, hcf	Centum cubic feet, Hundred cubic feet
gpd	Gallons per day
gpcd	Gallons per capita day, or gallons per person per day
gsf	Gross square feet
MGD	Million gallons per day
sf	Square feet
BAWSCA	Bay Area Water Supply and Conservation Agency
BMP	Best management practice
Cal Water	California Water Service Company
CCR	California Code of Regulations
C&I	Commercial and Institutional
CEQA	California Environmental Quality Act
CWC	California Water Code
DDW	SWRCB Division of Drinking Water (formerly CDPH)
DMM	Demand management measure
DWR	California Department of Water Resources
EIR	Environmental Impact Report
LAFCO	Local Agency Formation Commission
MPSP	Moffett Park Specific Plan
RWS	City and County of San Francisco's Regional Water System
SB	California Senate Bill
SFPUC	San Francisco Public Utilities Commission
SVCW	Silicon Valley Clean Water (formerly SBSA)
SWRCB	California State Water Resources Control Board
UDF	Unit Demand Factor
UWMP	Urban Water Management Plan
VW	Valley Water
WCIP	BAWSCA Water Conservation Implementation Plan
WSA	Water Supply Assessment
WSIP	SFPUC Water System Improvement Program
WVS	Written Verification of Supply

Table ii. Units of Measure Used in this Report

Unit	Equals
1 acre-foot	= 43,560 cubic feet = 325,851 gallons
1 cubic foot	= 7.48 gallons
1 ccf	= 100 cubic feet = 748 gallons
1 MGD	= 1,000,000 gallons/day = 1,120 acre-feet/year

Summary of Water Supply Assessment

Project: Moffett Park Specific Plan Amendments Project; Sunnyvale, California

Pursuant to Section 10910 of the California Water Code (CWC), and based on the analysis detailed in this report and the representations by the Project's proponents, the City of Sunnyvale (City) Public Works Department has determined that its currently projected water supplies will be sufficient to meet the projected annual water demands of existing and previously approved uses and the implementation of the Moffett Park Specific Plan Update (MPSP) Project (Project) during normal years. In single dry, and multiple dry years, the City does experience shortfalls ranging between 2% and 15%. The Project will increase water demand within the City by approximately 7,400 acre-feet per year (AFY). For this Water Supply Assessment (WSA), Project demand is compared to demands associated with development levels in the currently adopted MPSP.

The Project demand results in a 37% increase in demand projected in the 2020 UWMP. Under normal years, the City is not projected to experience shortfalls with the Project demand. During single dry year, and multiple dry year conditions, the City is projected to experience shortfalls with the Project demand. This assumes that the City is able to increase supply in accordance with the 2020 UWMP Valley Water (VW) during normal and single dry year conditions. It also assumes the Bay Delta Plan is implemented and supply curtailments from the San Francisco Public Utilities Commission (SFPUC) reduce supply to the City. In multiple dry years, it is assumed that the City can increase groundwater supplies as needed up to the safe yield of 8,000 AFY. The City can implement their Stage 1 and Stage 2 Water Shortage Contingency Plan to reduce water usage between 0-20% to reduce the anticipated demands in the planning periods. The City will have sufficient water supply if the Water Shortage Contingency Plan is implemented.

Should supplies from the SFPUC or groundwater wells be reduced, the City may need to impose water conservation measures per the Water Shortage Contingency Plan outlined in the 2020 UWMP. The Contingency Plan can address supply shortfalls of up to 50% through voluntary conservation and mandatory consumption restrictions. The implementation of these measures would result in supply remaining sufficient for the projected future demand even in multiple dry years.

Section 1 - Introduction

1.1 Project Overview

The City of Sunnyvale in Santa Clara County, California, (City) is reviewing the potential impacts of the Moffett Park Specific Plan Update (MPSP) project (Project). The MPSP encompasses 1,270 acres located in the northernmost portion of the City and is bounded by State Route (SR) 237 to south, Moffett Federal Airfield and golf course to the west, San Francisco Bay to the north, and Caribbean Drive and Baylands Drive to the east. This Water Supply Assessment (WSA) is being prepared in accordance with SB 610 for the City's California Environmental Quality Act (CEQA) work in connection with the project. Potable water supply for the Project is provided by the City of Sunnyvale. Further description of the Project is given in Section 2.0.

1.2 Purpose of Water Supply Assessment

The California Water Code (§10910 et. seq.), based on Senate Bill 610 of 2001 (SB 610), requires a project proponent to assess the reliability of a project's water supply as part of the California Environmental Quality Act (CEQA) process. If the City or District providing potable water supply does not have sufficient existing water supply to meet the project demands of the project, the development of additional water supplies must be addressed in the WSA and in the project Environmental Impact Report (EIR).

Under the California Government Code (§66473.7), based on Senate Bill 221 of 2001, proposed subdivisions adding 500 dwelling units are also required to receive written verification of the available water supply from the project's water supplier. This Project does not include the creation of a subdivision or a subdivision tract map, so a written verification of supply is not required.

This report is meant to serve as the WSA for the Project to meet the California Water and Government Code requirements. This WSA documents the City's existing and future water supplies for the Project area and compares them to the City's total projected water demands for the next twenty (20) years.

SB 610 requires the following steps be taken to identify the need and scope of a project's WSA:

1. Determine whether the project is subject to CEQA.
2. Determine whether the project meets the definition of a "project" per SB 610.
3. Determine the public water agency that will serve the project.
4. Determine whether any current Urban Water Management Plan considers the projected water demand for the project area.
5. Determine whether groundwater is used by the public water agency to serve the project area.

1.3 Project Subject to CEQA

CEQA applies to projects for which a public agency is directly responsible, funds, and/or requires the issuance of a permit. The City of Sunnyvale determined that the Project is subject to the requirements of CEQA. An EIR is currently being prepared for the Project.

1.4 Project Requiring a Water Supply Assessment

CWC §10912(a) defines a Project for WSA purposes as including any of the following:

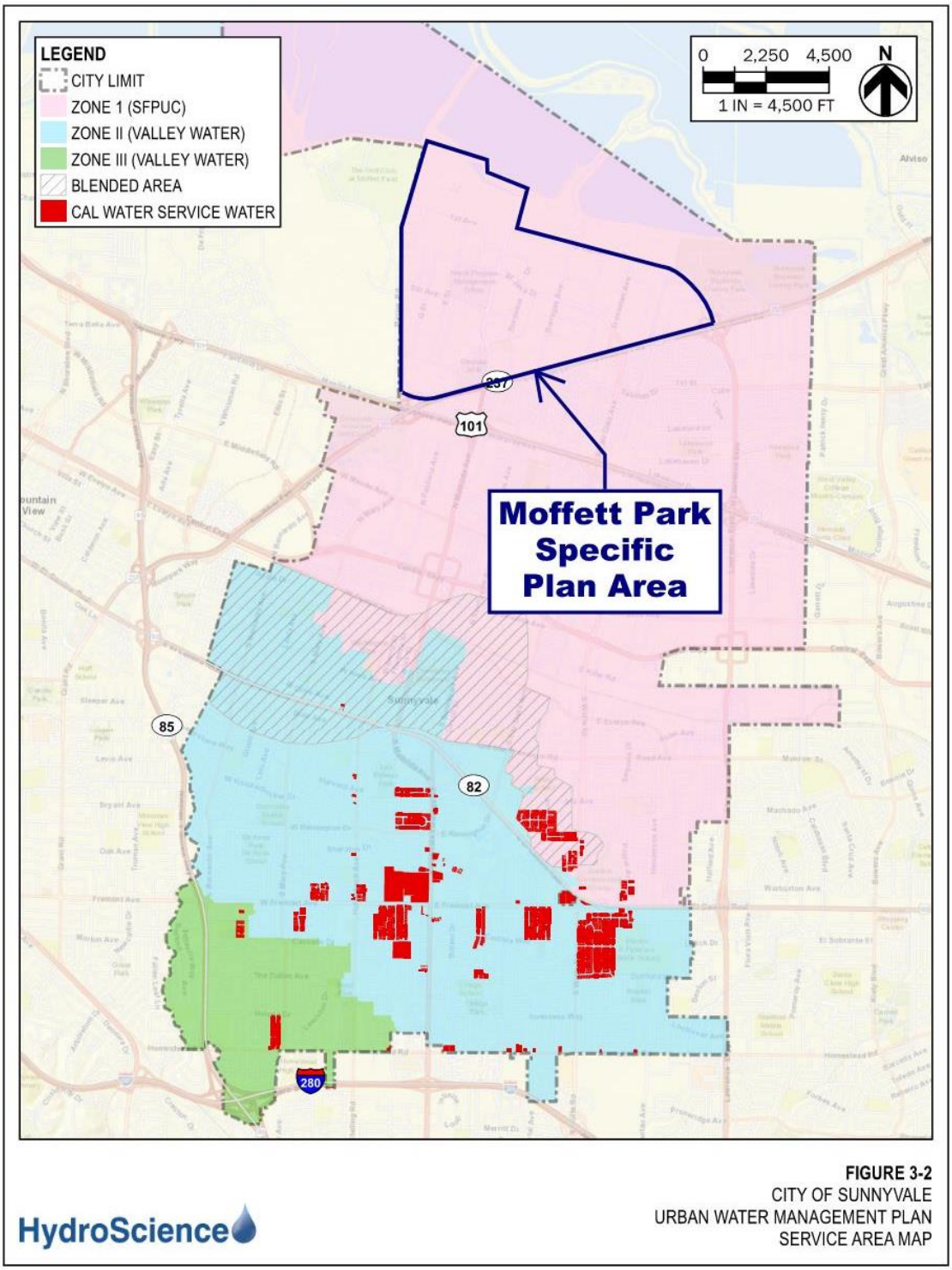
- a proposed residential development of more than 500 dwelling units;
- a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- a proposed hotel or motel, or both, having more than 500 rooms;
- a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- a mixed-use project that includes one or more of the projects identified in this list; or
- a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The Project will result in a net increase in water usage from the pre-project scenario due to the net addition of 20,000 residential units and approximately 9,161,303 square feet of non-residential. Therefore, the City has required a WSA for the Project.

1.5 Public Water Agency Serving the Project

The City of Sunnyvale municipal water system serves most of the City of Sunnyvale including the Project (see Figure 1-1). The City is the water retailer for the area in which it serves and purchases water from both Valley Water (VW) and the San Francisco Public Utilities Commission (SFPUC), which are water wholesalers. The City also uses water from City-owned wells. The City has three service areas described by three pressure zones. Zone III covers the southwest corner of the City bounded by Hollenbeck Avenue to the east and Fremont Avenue to the north and is supplied by VW treated water and City groundwater. Zone II is generally bounded by Central Expressway and El Camino Real to the north and Zone III to the south and is supplied by a mixture of SFPUC water, City groundwater, and VW treated water. Zone I encompasses the north part of the City, bounded by Zone II to the south and San Francisco Bay to the north, and is supplied by primarily from SFPUC water.

The remaining portion of Sunnyvale's population, located in pocketed areas shown on Figure 1-1, are served by the California Water Service Company.



Source: 2020 UWMP

Figure 1-1: City of Sunnyvale Service Areas

1.6 Relationship of WSA to the Sunnyvale Urban Water Management Plan

The California Urban Water Management Planning Act (§10610 et. seq. of the CWC) requires urban water suppliers providing over 3,000 acre-feet per year (AFY) of water or having a minimum of 3,000 service connections to prepare plans (Urban Water Management Plans or UWMPs) on a five-year, ongoing basis. An UWMP must demonstrate the continued ability of the provider to serve customers with water supplies that meet current and future expected demands under normal, single dry, and multiple dry year scenarios. These plans must also include the assessment of urban water conservation measures and wastewater recycling. Pursuant to Section 10632 of the CWC, the plans must also include a water shortage contingency plan outlining how the water provider will manage water shortages, including shortages of up to fifty percent (50%) of their normal supplies, and catastrophic interruptions of water supply. The City of Sunnyvale is required to prepare Urban Water Management Plans. The City's most recent Urban Water Management Plan (2020 UWMP) was adopted in June 2021. The 2020 UWMP projected demands for 20 years through the Year 2040.

As provided for in the State law, this WSA incorporates by reference and relies upon many of the planning assumptions and projections of the 2020 UWMP in assessing the water demands of the proposed Project relative to the overall increase in water demands expected within the entire City service area. The 2020 UWMP projected overall water demand within the City to increase from 19,193 AFY in Year 2020 to 25,618 AFY in Year 2040, an increase of 6,425 AFY (approximately 33%). The largest increase in demands comes from the residential sector, increasing from 11,185 AFY in Year 2020 to 14,640 AFY in Year 2040.

The Project is proposing development intensities within the MPSP above what was projected in the currently adopted MPSP. As a result, the Project will result in demands higher than those projected in the 2020 UWMP.

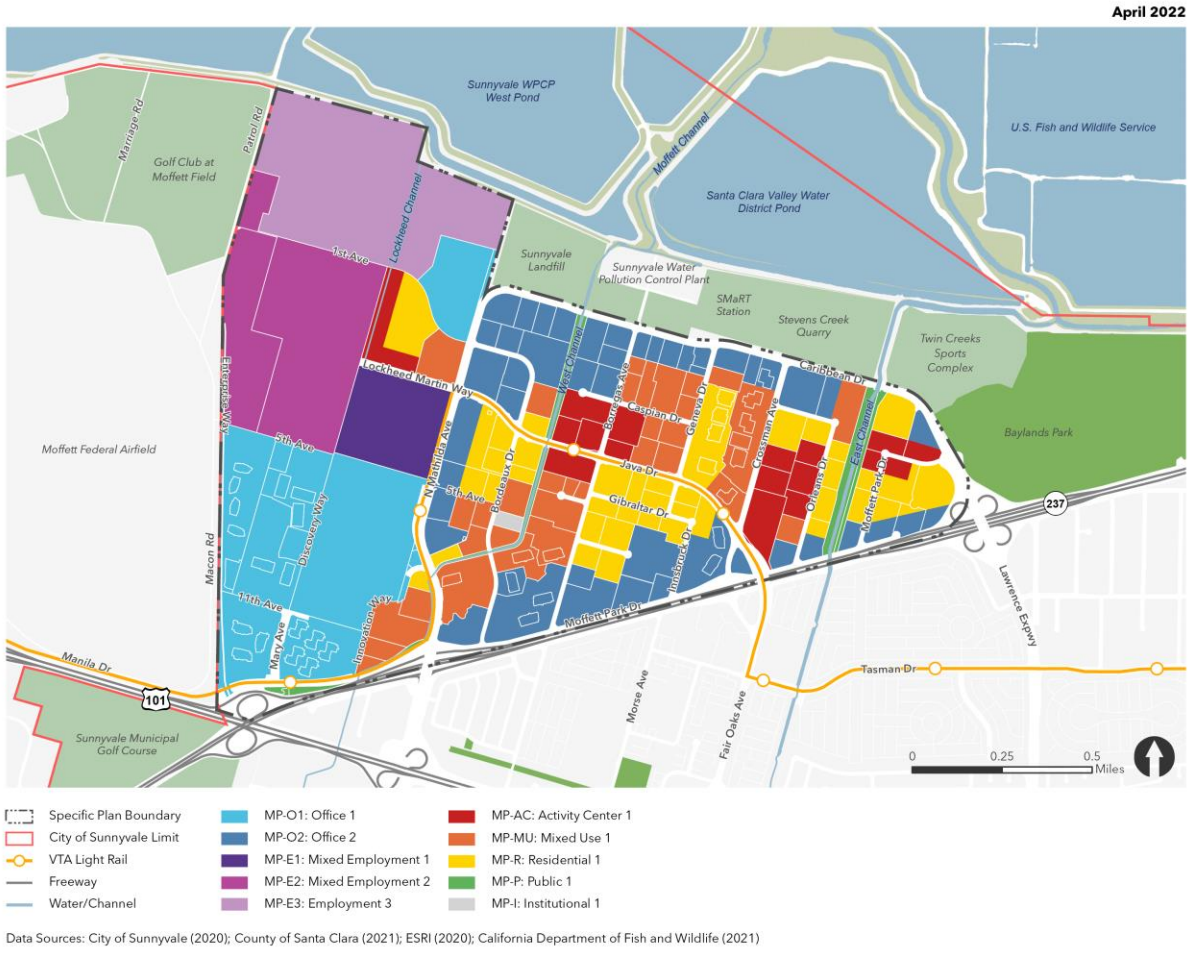
Section 2 - Project Description and Water Demands

2.1 Project Description

The Project proposes amendments to the Moffett Park Specific Plan (MPSP) to change the land use types and intensity of development within the MPSP area. The MPSP encompasses 1,270 acres located in the northernmost portion of the City and is bounded by State Route (SR) 237 to south, Moffett Federal Airfield and golf course to the west, San Francisco Bay to the north, and Caribbean Drive and Baylands Drive to the east. (Figure 2-1).

Currently, the MPSP area has a mix of land uses, including commercial, office, and industrial. The adopted MPSP allows a total of 230,000 square feet of commercial uses and 24,100,000 square feet of office, industrial, and R&D uses.

For the purposes of this WSA, the land use types and intensities adopted as part of the MPSP are considered pre-Project. The Project proposes amendments to the existing MPSP within the MPSP area, resulting in a net increase of approximately 20,000 residential units, 935,303 square feet of commercial, 7,900,000 square feet of office, industrial, and R&D, and 326,000 square feet of institutional.



Source: City of Sunnyvale, 2020

Figure 2-1: Proposed MPSP Land Uses

2.2 Project Land Use and Water Demands

The Project proposes amending the currently adopted MPSP to change land use types and densities in the Specific Plan area to allow for residential land use and increase the quantity of non-residential land use. Water demand from the proposed land use types can be estimated on a per-unit or per-square foot basis using unit duty factors. In this report, unit duty factors for the Project are based on the water demand factors developed from the El Camino Real Specific Plan WSA to remain consistent with the City's previous studies.

Table 2-1: Unit Duty Factors

Land Use	Unit	Duty Factor (gpd/unit) or (gpd/1000 sq ft)
High Density Residential with Office	Dwelling Units	170
Non-Residential	Square Feet	350

** Non-Residential includes Commercial, Office, Industrial, R&D, and Institutional Land Uses.*

Source: City of Sunnyvale El Camino Real WSA, provided by the City.

2.3 Project Historic Water Use

The MPSP Project is a mixed-use area and water demands can be estimated on a per-square foot and per-dwelling unit basis based on the land use type. Municipal water meter records have been reviewed for the period between 2011 and 2021 for the existing parcels in the Project area. Meter records provide water use monthly from 2011 to 2021 in centum cubic feet (ccf). Data from 2020 and 2021 may be affected due to mandatory work from home requirements as a result of the COVID-19 pandemic. Data from 2010-2019 is used to populate Table 2-2 to eliminate anomalies due to the pandemic. All available data was used to created Figure 2-2 for reference. Water meter records from the City are broken down by water source type.

Table 2-2: Existing Water Use at Project Area (2011-2019)

Water Use Type	Average Monthly Water Use (ccf/month)	Average Daily Water Use (gpd)	Average Yearly Use (AFY)
Potable Water	35,913	883,173	990
Recycled Water	22,162	545,011	610
Total	**58,075**	**1,428,184**	**1,600**

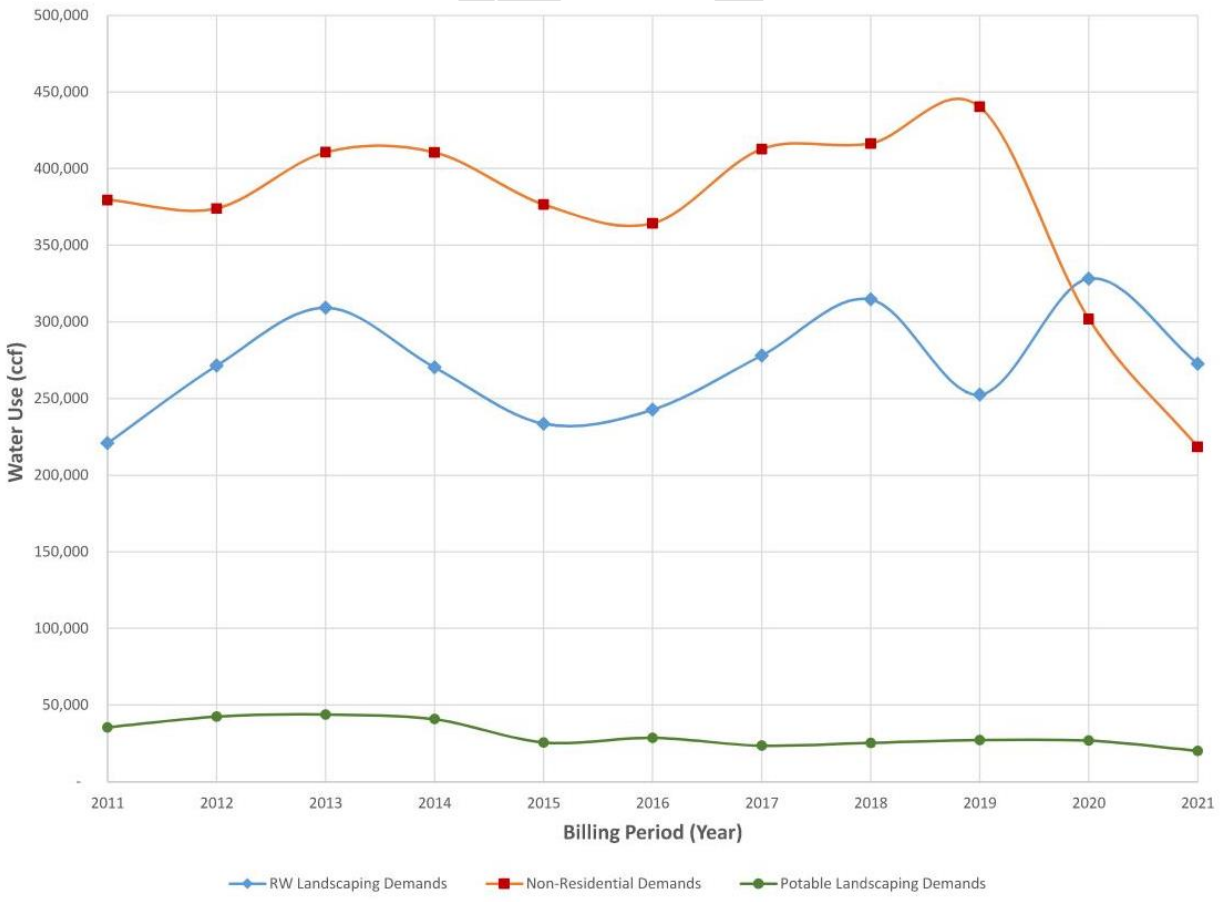


Figure 2-2. Irrigation and Non-Residential Water Use at MPSP Project Site (2011-2021)

2.4 Project Total Water Demands

The Project is anticipated to result in an increase of approximately 7,400 AFY over demands associated with development under the currently adopted MPSP, as shown in Table 2-3. Water demand for the currently adopted MPSP development levels using unit duty factors in Table 2-1 is 9,539 AFY. The total water demand projected for the Project at build-out based on the same unit duty factors is 16,939 AFY.

Table 2-3: Incremental Increase in Demand from the Project

	Land Use Type	Unit Duty Factor (gpd/unit) or (gpd/1000 sf)	Area (sf)	Dwelling Units	Daily Demand (gpd)	Total Demand (AFY)
Adopted MPSP Demands	Multi-Family Residential	170		0	0	9,539
	Non - Residential	350	24,330,000		8,515,500	
	Total		**24,330,000**	**0**	**8,515,500**	
Proposed MPSP Demands	Multi-Family Residential	170		20,000	3,400,000	16,939
	Non - Residential	350	33,491,303		11,721,956	
	Total		**33,491,303**	**20,000**	**15,121,956**	
Estimated Increase	Multi-Family Residential	170		20,000	3,400,000	7,400
	Non - Residential	350	9,161,303		3,206,456	
	Total		**9,161,303**	**20,000**	**6,606,456**	

The Project will utilize non potable water for irrigation and dual plumbing in new buildings. It is assumed 10% of Project water demands are assumed to be non-potable water. The breakdown of the increased water demand is as follows, 740 AFY will be non-potable water demand increase and 6,660 AFY will be potable water demand increase.

2.5 City Water Demands

2.5.1 Historical and Current Water Demands

Table 2-4 shows the City's past and current water use by customer sector. Water demand in 2020 was approximately 17 percent lower than in 2010 and approximately 18 percent higher than 2015. These water savings compared to 2010 are likely the result of conservation efforts in response to the drought conditions. However, water use increase compared to 2015 indicates additional growth and less stringent drought response efforts.

Table 2-4: Past and Current Potable Water Demands (AFY)

Customer Type	Year		
	2010*	2015*	2020**
Single Family Residential	7,023	5,449	6,285
Multi-Family Residential	8,309	4,452	5,614
Commercial, Industrial, and Institutional	4,261	3,806	3,593
Irrigation (Potable)	970	1,374	2,233
Other (Firelines)	911	9	11
Total	***21,474***	***15,090***	***17,736***

Total demands do not include system losses or recycled water demands.

**Source: 2015 UWMP, Table 4-1*

***Source: 2020 UWMP, Table 4-2*

2.5.2 Future Demands

Table 2-5 shows projected water demands for the City through 2040, taken from the 2020 UWMP. The City is projecting significant demand growth in all sectors with demand increasing every 5 years with the exception of single-family residential and multi-family residential decreasing between 2020 and 2030.

Table 2-5: 2020 UWMP Potable Water Demand Projections (AFY)

Customer Sector	Year				
	2020	2025	2030	2035	2040
Single Family Residential	6,285	5,884	5,939	7,234	7,805
Multi-Family Residential	5,614	5,301	5,295	6,379	6,835
Commercial, Industrial, and Institutional	3,593	4,391	4,546	4,945	4,165
Irrigation (Potable)	2,233	2,346	2,471	2,702	2,843
Other (Firelines)	11	7	7	9	9
System Losses	1,457	1,358	1,381	1,632	1,729
Total Demand	***19,193***	***19,287***	***19,639***	***22,901***	***24,386***

Note: Projected Demands do not include Recycled Water Demands. In 2020 the total estimated water demands are 20,187 AFY.

Source: 2020 UWMP, Table 4-2 & 4-3

Section 3 - Water Supply

3.1 Current Supply

The City of Sunnyvale (City) water supply is primarily obtained through purchased water from the San Francisco Public Utility Commission (SFPUC) and Valley Water (VW), totaling 56 percent and 42 percent of the supply, respectively, in 2020. This is supplemented with local groundwater wells comprising about 1 percent of the supply in 2020. In the northern part of the City, recycled water is available from the City's Water Pollution Control Plant (WPCP) for non-potable uses, comprising of approximately 2 percent of the supply in 2020. A small portion of the City is served by the California Water Service Company (Cal Water), Los Altos District. Water supply by source for 2020 is shown in Table 3-1.

Table 3-1: Water Supply by Source for 2020

Water Supply Source	Supply Type	Water Quality	Volume (AFY)	Total Right or Safe Yield
SFPUC	Purchased	Drinking Water	11,052	14,100
SCVWD	Purchased	Drinking Water	8,665	9,200
Groundwater	Groundwater	Drinking Water	87	8,000
Recycled Water	Tertiary-treated	Recycled Water	386	
Total			**20,187**	**31,300**

Source: 2020 UWMP, Table 6-7

3.1.1 SFPUC

A large portion of the City's water supply comes from the City and County of San Francisco's Regional Water System (RWS), which is operated by the SFPUC. Sunnyvale is one of 26 wholesale customers that are supplied by the RWS, which also supplies the City and County of San Francisco. The "Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County" (July 2009) governs this relationship. The RWS produces approximately 265 MGD (296,800 AFY), allocated as 81 MGD for retail customers and 184 MGD for wholesale customers. Under the 2009 Water Supply Agreement, the SFPUC provides up to 12.58 MGD to the City, or approximately 14,100 AFY.

3.1.2 Valley Water

VW acts as the primary water resources agency for Santa Clara County and imports water from various State and Federal water projects. In addition, VW captures and stores local surface water and recharges local groundwater basins. VW has a contract for 152,500 AFY of water from the Federal Central Valley Project (CVP) and 100,000 AFY from the State Water Project (SWP). Locally, VW operates ten reservoirs with a combined storage capacity of 166,000 acre-feet, though several are operating at restricted capacity due to seismic stability concerns. VW manages the recharge of the groundwater basins but does not operate any groundwater wells. Sunnyvale receives water from VW through a 75 year water supply contract that was entered into in 1976. The estimated maximum available supply to Sunnyvale is 8.21 MGD, or approximately 9,200 AFY. When water is available, the City can purchase additional available water from Valley Water during non-dry years. In June of 2021, VW called for a continued reduction in water use of 15 percent compared to 2019 due to temporary drought conditions.

3.1.3 Groundwater

Sunnyvale owns and operates six potable groundwater wells within the Santa Clara Plain Subarea of the Santa Clara Subbasin (DWR Subbasin 2-90.2). The City owns one additional groundwater well within the Santa Clara Subarea, but it is left on standby for emergencies. VW manages the recharge of the groundwater basin per the 2021 VW Groundwater Management Plan which describes the programs in place to maintain a reliable groundwater supply.

VW reported that the long-term average groundwater pumping in the Santa Clara Subbasin is 87,000 AFY[1]. Over the past twenty years, the City extracted on average less than 1% of this total. Historical groundwater metered data in Sunnyvale from 2016 to 2020 is shown in Table 3-1. The groundwater safe yield is estimated to be 8,000 AFY. Groundwater well pumping may be increased to meet future demands, both in normal years and dry years.

Table 3-2: Historical Groundwater Pumped Volume

Year	Volume Pumped (AFY)
2016*	154
2017*	118
2018*	105
2019*	92
2020*	87

**Source: 2020 UWMP, Table 6-1*

3.1.4 Recycled Water

The City of Sunnyvale WPCP currently provides recycled water to parks, golf courses, and the landscaping needs of diverse industries. The current City-owned recycled water system includes the WPCP pump station, the San Lucar tank and pump station, the Sunnyvale Golf Course pump station, and approximately 18 miles of recycled water pipelines ranging in diameter from 6- to 36-inch. In addition, the recently constructed Wolfe Road Pipeline Project extends the recycled water system south to the intersection of Wolfe and Homestead Roads in the City of Cupertino, but VW owns the pipeline and is the wholesaler of recycled water conveyed by the pipeline.

The long-term goal of the City is to reuse 100% of all wastewater from the WPCP. The City plans to continue expanding the recycled water system within the City boundaries with a phased approach as discussed in the *Feasibility Study for Recycled Water Expansion Report* (Hydroscience, 2013).

The Project is currently served by the recycled water system. The recycled water supply in the 2020 UWMP is equal to the demand in the planning period. The City currently meets any shortfall of recycled water supply by supplementing the recycled water system with potable water. The overall supply capacity meets the estimated demands and the City has the potential to increase recycled water supply as the demand for recycled water increases.

[1] VW Groundwater Management Plan, 2021

3.2 Projected Supplies and Supply Reliability

The Project is located in an area of the City served with SFPUC treated water and groundwater. Projected water supplies for the City are shown in Table 3-3.

Table 3-3: Projected Water Supplies (AFY)

Water Supply	2025	2030	2035	2040
SFPUC Purchased Water	14,100	14,100	14,100	14,100
VW Purchased Water	9,215	9,338	11,226	11,923
Local Groundwater Wells	8,000	8,000	8,000	8,000
Recycled Water	896	1,010	1,120	1,232
Total	**32,211**	**32,448**	**34,446**	**35,255**

**Source: 2020 UWMP, Table 6-8*

3.2.1 SFPUC

The reliability of the San Francisco RWS is discussed in detail in the 2020 UWMP. In order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC has undertaken the Water System Improvement Program (WSIP). The WSIP will deliver capital improvements aimed at a total delivery reliability goal of 265 MGD of supply with no greater than 20 percent rationing in any one year of a drought. This project is currently 99 percent complete and is anticipated to be complete in 2023.

In December 2018, the State Water Board adopted amendments to its Bay Delta Plan to establish water quality objectives to maintain the health of the Bay Delta ecosystem. A main goal of the Bay Delta Plan is to increase salmon populations in the Bay Delta and three San Joaquin River tributaries by requiring 30 percent to 50 percent unimpaired flow from February through June. The SFPUC has analyzed past system yields to identify historical periods with single and multiple dry-years. The SFPUC has translated these dry-year projections into reductions to the wholesale water supply available to the BAWSCA member agencies, including Sunnyvale. SFPUC projects that if the Bay Delta Plan is implemented as adopted, the dry-year water supplies available to the BAWSCA agencies will be reduced between 36 and 54 percent (based on projected wholesale demand of 162 MGD) or between 55 and 60 percent (based on a maximum wholesale demand of 184 MGD). To address potential future shortfalls, SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would improve water resilience. Capital projects under consideration include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. These projects are in the early feasibility or conceptual planning stages, and SFPUC expects to complete the Alternative Supply Program evaluation by July 2023.

3.2.2 Valley Water

VW has developed a 2020 VW UWMP[2] to discuss the potential threats to water supply including climate change, local fisheries operations, invasive species damage, earthquake, environmental regulations, and reduced groundwater production. Based on Valley Water's existing and planned sources of supply, Valley

[2] Valley Water UWMP, 2020

Water expects to be able to meet Countywide demands through 2045 under normal and drought conditions.

Section 4 - Supply Sufficiency Analysis

4.1 Comparison of Project Demands to Projected Supply

With the addition of the Project, the City's water supply contracts with the San Francisco Public Utilities Commission (SFPUC) and Valley Water (VW) meet the projected water demands throughout the planning period, as shown in Table 4-1 below. Supply from the VW, groundwater, and recycled water represent expected supply from the Table 6-4 in the 2020 UWMP. Supply from the SFPUC increases to meet the incremental increase in demand resulting from the Project up to the City's total right of 14,100 AFY. The Project results in approximately a 37% increase in demand over the 2020 UWMP projected demand.

Table 4-1: Sunnyvale Supply vs. Demand, Normal Year (AFY)

Supply Source	Year			
	2025	2030	2035	2040
SFPUC[1]	14,100	14,100	14,100	14,100
VW[2]	9,215	9,338	11,226	11,923
Groundwater[2]	8,000	8,000	8,000	8,000
Potable Supply Production	**31,315**	**31,438**	**33,326**	**34,023**
Potable Demand[3]	19,287	19,639	22,901	24,386
MPSP Project Demand	6,660	6,660	6,660	6,660
Total Potable Demand	**25,947**	**26,299**	**29,561**	**31,046**
Difference (% demand)	***21%***	***20%***	***13%***	***10%***
Recycled Supply	**896**	**1,010**	**1,120**	**1,232**
Recycled Demand[3]	896	1,010	1,120	1,232
Project Recycled Demand	740	740	740	740
Total Non-Potable Demand	**1,636**	**1,750**	**1,860**	**1,972**
Difference (% demand)	***-45%***	***-42%***	***-40%***	***-38%***
Total Supply	**32,211**	**32,448**	**34,446**	**35,255**
Total Demand	**27,583**	**28,049**	**31,421**	**33,018**
Difference	***17%***	***16%***	***10%***	***7%***

Source: UWMP, 2020, Table 4-4, 6-4, 6-8, 7-6, & 8-2

Notes:

1. *SFPUC supply increases as necessary to meet additional Project demand up to the City's total right of 14,100 AFY.*
2. *Supply is based on expected supply per Table 7-4 in the 2020 UWMP and does not necessarily reflect the maximum supply available.*
3. *2020 UWMP Demand is based on Table 7-6 in the 2020 UWMP.*

4.2 Reliability of Water Supply

During a single dry year, the City's water supply contracts with the SFPUC and VW do not meet the projected water demands throughout the planning period, as shown in Table 4-2 below. During single dry year, recycled water supply is not sufficient to meet projected water demands. Total City production does

not meet the anticipated demands in any single dry year in the planning period. Deficiencies in supply range from 2% to 9% through the planning period. The City can implement their Stage 1 Water Shortage Contingency Plan to reduce water usage between 0-10% to meet the anticipated demands in the planning period. Similar to the normal year analysis, supply from SFPUC, VW, groundwater, and recycled water represent expected supply from the Table 6-8 and 7-6 in the 2020 UWMP assuming interruptions from the SFPUC due to the Bay-Delta Plan.

Table 4-2: Sunnyvale Supply vs. Demand, Single Dry-Year (AFY)

Supply Source	Year			
	2025	2030	2035	2040
SFPUC[1]	9,024	9,024	9,024	8,883
VW[2]	9,215	9,338	11,226	11,923
Groundwater[2]	8,000	8,000	8,000	8,000
Potable Supply Production	**26,239**	**26,362**	**28,250**	**28,806**
Potable Demand[3]	19,287	19,639	22,901	24,386
MPSP Project Demand	6,660	6,660	6,660	6,660
Total Potable Demand	**25,947**	**26,299**	**29,561**	**31,046**
Difference (% demand)	***1%***	***0%***	***-4%***	***-7%***
Recycled Supply	**896**	**1,010**	**1,120**	**1,232**
Recycled Demand[3]	896	1,010	1,120	1,232
Project Recycled Demand	740	740	740	740
Total Non-Potable Demand	**1,636**	**1,750**	**1,860**	**1,972**
Difference (% demand)	***-45%***	***-42%***	***-40%***	***-38%***
Total Supply	**27,135**	**27,372**	**29,370**	**30,038**
Total Demand	**27,583**	**28,049**	**31,421**	**33,018**
Difference	***-2%***	***-2%***	***-7%***	***-9%***

Source: UWMP, 2020, Table 6-8 & 7-6

Notes:

1. *SFPUC supply includes interruptions due to the Bay-Delta Plan in 2023 and Tier Two reduction plan.*
2. *Supply is based on total available water per Table 6-8 and 7-6 in the 2020 UWMP.*
3. *2020 UWMP Demand is based on Table 7-6 in the 2020 UWMP.*

Under multiple dry year conditions, projected water demands in the planning period cannot be met with the projected SFPUC and VW supplies, even when assuming groundwater supplies can be increased to meet additional Project demand. Table 4-3 shows the supply analysis for the planning period. Supply from the SFPUC, the VW, and recycled water represent expected supply from Tables 7-7 in the 2020 UWMP. Groundwater supply increases to meet the incremental increase in demand results from the Project up to the safe yield of 8,000 AFY. Difference in supply versus demand for the planning period range between 2% and 15%. The City can implement their Stage 2 Water Shortage Contingency Plan to reduce water usage between 10-20% to meet the anticipated demands in the planning period.

Should supply decrease, the City would implement its staged Water Shortage Contingency Plan, described in detail in the 2020 UWMP. The Contingency Plan includes a mix of voluntary and mandatory rationing actions and can mitigate shortfalls of up to 50%. In emergencies, the City can implement additional actions to mitigate shortfalls above 50%. Supply deficits are to be compensated for with increased conservation and consumption restrictions, according to the 2020 UWMP.

Table 4-3: Sunnyvale Supply vs. Demand, Multiple Dry-Years (AFY)

Supply Source	2025					2030					2035					2040				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
SFPUC[1]	9,024	7,755	7,755	7,755	7,755	9,024	7,755	7,755	7,755	7,755	9,024	7,614	7,614	7,614	7,050	8,883	7,614	7,614	6,768	6,768
VW	9,215	9,215	9,215	9,215	9,215	9,338	9,338	9,338	9,338	9,338	11,226	11,226	11,226	11,226	11,226	11,923	11,923	11,923	11,923	11,923
Groundwater[2]	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Potable Supply	**26,239**	**24,970**	**24,970**	**24,970**	**24,970**	**26,362**	**25,093**	**25,093**	**25,093**	**25,093**	**28,250**	**26,840**	**26,840**	**26,840**	**26,276**	**28,806**	**27,537**	**27,537**	**26,691**	**26,691**
Potable Demand[3]	19,287	19,287	19,287	19,287	19,287	19,639	19,639	19,639	19,639	19,639	22,901	22,901	22,901	22,901	22,901	24,386	24,386	24,386	24,386	24,386
MPSP Project Demand	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660	6,660
Total Potable Demand	**25,947**	**25,947**	**25,947**	**25,947**	**25,947**	**26,299**	**26,299**	**26,299**	**26,299**	**26,299**	**29,561**	**29,561**	**29,561**	**29,561**	**29,561**	**31,046**	**31,046**	**31,046**	**31,046**	**31,046**
Difference	***1%***	***-4%***	***-4%***	***-4%***	***-4%***	***0%***	***-5%***	***-5%***	***-5%***	***-5%***	***-4%***	***-9%***	***-9%***	***-9%***	***-11%***	***-7%***	***-11%***	***-11%***	***-14%***	***-14%***
Recycled Supply	**896**	**896**	**896**	**896**	**896**	**1,010**	**1,010**	**1,010**	**1,010**	**1,010**	**1,120**	**1,120**	**1,120**	**1,120**	**1,120**	**1,232**	**1,232**	**1,232**	**1,232**	**1,232**
Recycled Demand[3]	896	896	896	896	896	1,010	1,010	1,010	1,010	1,010	1,120	1,120	1,120	1,120	1,120	1,232	1,232	1,232	1,232	1,232
Project Recycled Demand	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740	740
Total Recycled Demand	**1,636**	**1,636**	**1,636**	**1,636**	**1,636**	**1,750**	**1,750**	**1,750**	**1,750**	**1,750**	**1,860**	**1,860**	**1,860**	**1,860**	**1,860**	**1,972**	**1,972**	**1,972**	**1,972**	**1,972**
Difference	***-45%***	***-45%***	***-45%***	***-45%***	***-45%***	***-42%***	***-42%***	***-42%***	***-42%***	***-42%***	***-40%***	***-40%***	***-40%***	***-40%***	***-40%***	***-38%***	***-38%***	***-38%***	***-38%***	***-38%***
Total Supply	**27,135**	**25,866**	**25,866**	**25,866**	**25,866**	**27,372**	**26,103**	**26,103**	**26,103**	**26,103**	**29,370**	**27,960**	**27,960**	**27,960**	**27,396**	**30,038**	**28,769**	**28,769**	**27,923**	**27,923**
Total Demand	**27,583**	**27,583**	**27,583**	**27,583**	**27,583**	**28,049**	**28,049**	**28,049**	**28,049**	**28,049**	**31,421**	**31,421**	**31,421**	**31,421**	**31,421**	**33,018**	**33,018**	**33,018**	**33,018**	**33,018**
Difference	***-2%***	***-6%***	***-6%***	***-6%***	***-6%***	***-2%***	***-7%***	***-7%***	***-7%***	***-7%***	***-7%***	***-11%***	***-11%***	***-11%***	***-13%***	***-9%***	***-13%***	***-13%***	***-15%***	***-15%***

Source: UWMP, 2020, Tables 8-4

Notes:

1. *Supply is based on expected supply needs and does not necessarily reflect the maximum supply available.*
2. *Groundwater supply increases as necessary to meet additional Project demand up to the City's safe yield of 8,000 AFY.*
3. *2020 UWMP Demand is based on Table 6-4, 6-8, 7-6, and 8-4 in the 2020 UWMP for each respective 5-year interval.*

Section 5 - Conclusions

5.1 Sufficiency of Water Supply for the Project

The Project is projected to increase water demand in the Specific Plan area to 16,939 AFY at build-out with a net incremental increase of 7,400 AFY. As the currently adopted Moffett Park Specific Plan (MPSP) did not account for the development densities proposed by the Project, the increase in water use within the Project area has not been accounted for in the projected growth in water use shown in the 2020 UWMP.

The City of Sunnyvale water service has sufficient existing water supply to fully support the Project under normal years. In the single dry and multiple dry water years the City does not have sufficient capacity to meet the anticipated demands. The City is projected to experience supply shortfalls under single dry-year conditions and multiple dry-year conditions due to the anticipated water supply shortfalls from the SFPUC due to the Bay Delta Plan. The City can impose water conservation measures in keeping with the Water Shortage Contingency Plan to reduce demand. The implementation of these measures would result in supply remaining sufficient for the projected future demand under all conditions.

5.2 Future Actions

Section 10911(b) of the Water Code states "The City or County shall include the water assessment provided pursuant to Section 10910, in any environmental document prepared for the Project pursuant to [CEQA]." The City of Sunnyvale will need to adopt this WSA as part of the CEQA environmental review for the proposed Project, including the findings described above.

Appendix A: References

California Department of Water Resources:

20x2020 Water Conservation Plan, February 2010.

California Irrigation Management Information System (CIMIS) website, www.cimis.water.gov

Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, October 8, 2003

Guidebook to Assist Water Suppliers to Prepare a 2010 Urban Water Management Plan, March 2011

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California Urban Water Conservation Council, Memorandum of Understanding Regarding Urban Water Conservation in California, As Amended June 9, 2010

California Building Standards Commission, 2010 California Green Building Standards Code, California Code of Regulations, Title 24, Part 11

Hydroscience:

City of Sunnyvale Potable Water System Comprehensive Preliminary Design Report, October 2013

City of Sunnyvale 2015 Urban Water Management Plan, June 2016

City of Sunnyvale 2020 Urban Water Management Plan, June 2021

Feasibility Study for Recycled Water Expansion Report, June 2013

Infrastructure Engineering Corporation:

City of Sunnyvale Water Utility Master Plan, November 2010

Wastewater Collection System Master Plan, December 2015

San Francisco Public Utilities Commission:

2020 Urban Water Management Plan, April 2021

Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County, June 2009.

Santa Clara Valley Water District:

2015 Groundwater Management Plan, http://www.valleywater.org/GroundwaterManagement/, November 2016

2015 Urban Water Management Plan, http://www.valleywater.org/Services/UWMP.aspx, May 2016

2021 Groundwater Management Plan, November 2021

2020 Urban Water Management Plan, http://www.valleywater.org/Services/UWMP.aspx, June 2021

Other:

University of California Cooperative Extension, A Guide to Estimating Irrigation Water Needs for Landscape Plantings in California, August 2000

Appendix B: City of Sunnyvale Council Resolution Approving the Water Supply Assessment for the Moffett Park Specific Plan Project [PLACEHOLDER]