

DRAFT WATER SUPPLY ASSESSMENT

FOR THE

DOWNTOWN SPECIFIC PLAN (DSP)

AMENDMENTS PROJECT

Prepared by

CITY OF SUNNYVALE



Sunnyvale

and

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

August 2019

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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
RWS	City and County of San Francisco's Regional Water System
SB	California Senate Bill
SCVWD	Santa Clara Valley Water District
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
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

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Summary of Water Supply Assessment

Project: Downtown 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 Downtown Specific Plan (DSP) Amendments Project (Project) during normal, single dry, and multiple dry years. The Project will increase water demand within the City by approximately 329 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 DSP.

The Project demand results in a 1% increase in demand projected in the 2015 UWMP. Under normal, single dry year, and multiple dry year conditions, the City is not projected to experience shortfalls with the Project demand. This assumes that the City is able to increase supply in accordance with the 2015 UWMP from the San Francisco Public Utilities Commission (SFPUC) and Santa Clara Valley Water District (SCVWD) during normal and single dry year conditions. 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.

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 2015 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 Downtown Specific Plan (DSP) Amendments project (Project). The DSP encompasses 125 acres bounded by the railroad/Caltrain tracks to the north, Bayview Avenue to the east, El Camino Real to the south, and Charles Street to the west. The DSP is split into 22 Blocks, with Block 18 divided into six smaller sub-blocks. The Project proposes amendments to six sites within three Blocks of the DSP to change the land use mix and intensity of development and specific development proposals for the six project sites. 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.

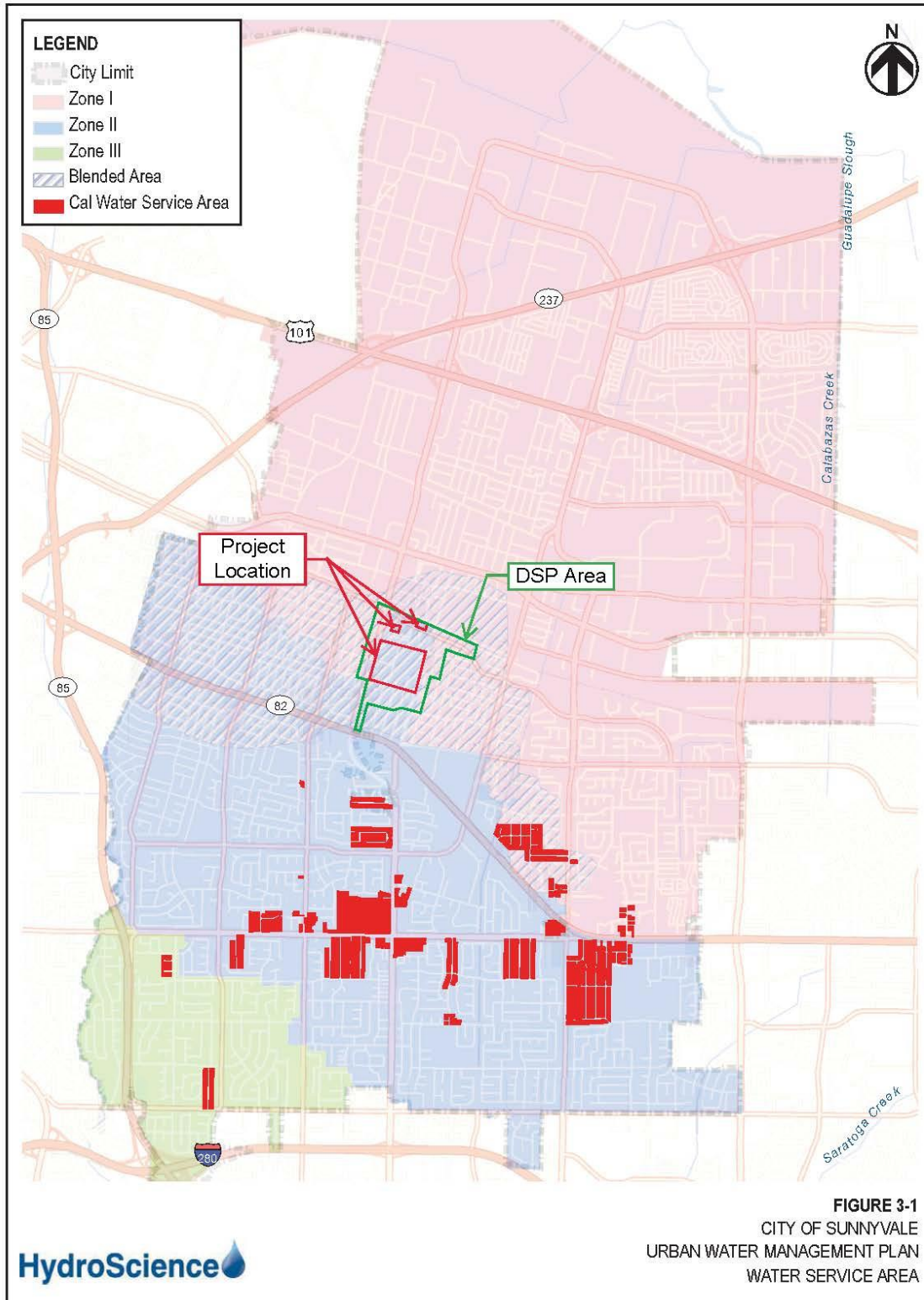
The Project will result in a net increase in water usage from the pre-project scenario due to the net addition of 750 residential units and approximately 843,000 square feet of office. Therefore, the City has required a WSA for the Project.

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 the Santa Clara Valley Water District (SCVWD) 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 treated SCVWD treated water and City well water. 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 SFPUC 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.

Figure 1-1: City of Sunnyvale Service Areas



Source: 2015 UWMP

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 (2015 UWMP) was adopted in June 2016. The 2015 UWMP projected demands for 20 years through the year 2035.

As provided for in the State law, this WSA incorporates by reference and relies upon many of the planning assumptions and projections of the 2015 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 2015 UWMP projected overall water demand within the City to increase from 15,090 AFY in year 2015 to 25,216 AFY in year 2035, an increase of 10,126 AFY (approximately 67%). The largest increase in demands comes from the commercial, industrial, and institutional (CII) sector, increasing from 3,806 AFY in year 2015 to 10,268 AFY in year 2035.

The Project is proposing development intensities for several Blocks within the DSP above what was projected in the currently adopted DSP. As a result, the Project will result in demands higher than those projected in the 2015 UWMP.

Section 2 - Project Description and Water Demands

2.1 Project Description

The Project proposes amendments to the Downtown Specific Plan (DSP) to change the land use mix and intensity of development as well as specific development proposals for six sites within the DSP area. The DSP encompasses 125 acres bounded by the railroad/Caltrain tracks to the north, Bayview Avenue to the east, El Camino Real to the south, and Charles Street to the west (Figure 2-1). The DSP is split into 22 Blocks, with Block 18 divided into six smaller sub-blocks.

Currently, the DSP area has a mix of land uses, including residential, commercial, office, and hotel. The DSP, however, described a vision for an enhanced traditional and pedestrian friendly downtown area with a variety of destinations. The adopted DSP allows a total of 2,200 residential units, 1,367,000 square feet of commercial uses, 1,080,000 square feet of office uses, and 200 hotel rooms.

For the purposes of this WSA, the land use types and intensities at the six project sites under the adopted DSP are considered pre-Project. The Project proposes amendments for six sites within the DSP area, resulting in a net increase of approximately 750 residential units, 79,000 square feet of commercial, and 843,000 square feet of office from the currently adopted DSP. The amendments also result in a decrease of 200 hotel rooms. Five of the six project sites propose to achieve LEED Gold or Silver, with measures including but not limited to water efficient landscaping, recycled water irrigation, and installing low flow plumbing.

Figure 2-1: Currently Adopted DSP Land Uses and Blocks

6. Downtown Districts



FIGURE 6.1 LAND USES

Source: City of Sunnyvale, 2013

2.2 Project Land Use and Water Demands

The Project proposes amending the currently adopted DSP to change land use types and densities at six project sites within the DSP. 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 is based on the water demand factors developed from water meter data from 2009-2010 as calculated in the *Wastewater Collection System Master Plan* (IEC, 2015).

Table 2-1: Unit Duty Factors

Land Use	Unit	Duty Factor (gpd/unit) or (gpd/1000 sq ft)
Low Density Residential	Dwelling Units	287
Low-Medium Density Residential	Dwelling Units	290
Medium Density Residential	Dwelling Units	181
High Density Residential	Dwelling Units	168
High Density Residential with Office	Dwelling Units	109
Office	Square Feet	244
Commercial	Square Feet	350
Hotel*	# Rooms	109

* Hotel unit duty factor based on high density residential with office unit duty factor.

Source: Wastewater Collection System Master Plan, IEC, 2015

2.3 Project Total Water Demands

The Project is anticipated to result in an increase of approximately 329 AFY over demands associated with development under the currently adopted DSP, as shown in Table 2-2. Water demand for the currently adopted DSP development levels using unit duty factors in Table 2-1 is 115 AFY, as shown in Table 2-3. The total water demand projected for the Project at build-out based on the same unit duty factors is 444 AFY, as detailed in Table 2-4.

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

Development Condition	Demand (AFY)
Adopted DSP	115
Project	444
Incremental Increase	+329

Table 2-3: Estimation of Adopted DSP Demand Using UDFs (AFY)

Project Site	Land Use Type	Unit Duty Factor (gpd/unit or gpd/1000 sq ft)	Units	Area (sq ft)	Daily Demand (gpd)	Total Demand (AFY)
100 Altair Way	Housing*	109	43		4,687	5
	Commercial	350		4,000	1,400	2
	Office	244		8,000	1,952	2
300 Mathilda Ave	Housing*	109	0		0	0
	Commercial	350		0	0	0
	Office	244		0	0	0
200 Taafe Street	Housing*	109	50		5,450	6
	Commercial	350		8,720	3,052	3
	Office	244		0	0	0
Macy's and Redwood Square	Housing*	109	0		0	0
	Commercial	350		177,000	61,950	70
	Office	244		0	0	0
	Hotel	109	200		21,800	24
Sub-block 6	Housing*	109	0		0	0
	Commercial	350		0	0	0
	Office	244		9,896	2,415	3
Murphy Square	Housing*	109	0		0	0
	Commercial	350		0	0	0
	Office	244		0	0	0
Total						115

* Housing unit duty factor based on high density residential with office.

Table 2-4: Estimation of Project Demand Using UDFs (AFY)

Project Site	Land Use Type	Unit Duty Factor (gpd/unit or gpd/1000 sq ft)	Units	Area (sq ft)	Daily Demand (gpd)	Total Demand (AFY)
100 Altair Way	Housing*	109	0		0	0
	Commercial	350		0	0	0
	Office	244		134,324	32,775	37
300 Mathilda Ave	Housing*	109	0		0	0
	Commercial	350		10,700	3,745	4
	Office	244		172,200	42,017	47
200 Taafe Street	Housing*	109	51		5,559	6
	Commercial	350		8,720	3,052	3
	Office	244		0	0	0
Macy's and Redwood Square	Housing*	109	400		43,600	49
	Commercial	350		188,178	65,862	74
	Office	244		485,000	118,340	133
	Hotel	109	0		0	0
Sub-block 6	Housing*	109	392		42,728	48
	Commercial	350		61,185	2,1415	24
	Office	244		0	0	0
Murphy Square	Housing*	109	0		0	0
	Commercial	350		0	0	0
	Office	244		69,100	16,860	19
Total						444

* Housing unit duty factor based on high density residential with office.

2.4 City Water Demands

2.4.1 Historical and Current Water Demands

Table 2-5 shows the City’s past and current water use by customer sector. Water demand in 2015 was approximately 30 percent lower than in 2010. These water savings are likely the result of conservation efforts in response to the drought conditions. However, water use is expected to increase again by 2020. An increase in water demand can be seen from City provided data for years 2016 to 2018.

Table 2-5: Past and Current Water Demands (AFY)

Customer Type	Year				
	2010*	2015*	2016**	2017**	2018**
Single Family Residential	7,023	5,449	-	-	-
Multi-Family Residential	8,309	4,452	-	-	-
Commercial, Industrial, and Institutional	4,261	3,806	-	-	-
Irrigation (Potable)	970	1,374	-	-	-
Other (Firelines)	911	9	-	-	-
Total	21,474	15,090	16,503	18,639	18,582

*Source: 2015 UWMP, Table 4-1

**Source: City of Sunnyvale

2.4.2 Future Demands

Table 2-5 shows projected water demands for the City through 2035, taken from the 2015 UWMP. The City is projecting significant demand growth in the commercial, industrial, and institutional sector with demand increasing every 5 years. For all other sectors, peak demand occurs in 2025, with demand falling slightly between 2025 and 2035.

Table 2-6: 2015 UWMP Water Demand Projections (AFY)

Customer Sector	Year			
	2020	2025	2030	2035
Single Family Residential	7,619	7,796	7,563	7,351
Multi-Family Residential	5,575	5,705	5,534	5,379
Commercial, Industrial, and Institutional	6,722	7,952	8,986	10,268
Irrigation (Potable)	2,288	2,341	2,271	2,208
Other (Firelines)	10	10	10	10
Total Demand	22,214	23,804	24,364	25,216

Source: 2015 UWMP, Table 4-1

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 the Santa Clara Valley Water District (SCVWD), totaling 54 percent and 40 percent of the supply, respectively, in 2015. This is supplemented with local groundwater wells comprising about 1 percent of the supply in 2015. In the northern part of the City, recycled water is available from the City’s Water Pollution Control Plant (WPCP) for non-potable uses. A small portion of the City is served by the California Water Service Company (Cal Water), Los Altos District. Water supply by source for 2015 is shown in Table 3-1.

Table 3-1: Water Supply by Source for 2015

Water Supply Source	Supply Type	Water Quality	Volume (AFY)
SFPUC	Purchased	Drinking Water	8,883
SCVWD	Purchased	Drinking Water	6,497
Groundwater	Groundwater	Drinking Water	134
Recycled Water	Tertiary-treated	Recycled Water	717
Total			16,231

Source: 2015 UWMP, Table 6-1

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 SCVWD

Water supplied by the SCVWD to the City consists of treated water from the Central Valley Project (CVP) and the State Water Project (SWP) as well as surface waters from local reservoirs. In addition, the SCVWD captures and stores local surface water and recharges local groundwater basins. The SCVWD has a contract for 152,500 AFY of water from the CVP and 100,000 AFY from the SWP. Locally, the SCVWD operates ten reservoirs with a combined storage capacity of 170,000 acre-feet. The SCVWD manages the recharge of the groundwater basins but does not operate any groundwater wells. Sunnyvale receives water from the SCVWD through a 75 year water supply contract that was entered into in 1976.

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. The SCVWD manages the recharge of the

groundwater basin per the 2016 SCVWD Groundwater Management Plan which describes the programs in place to maintain a reliable groundwater supply.

The SCVWD reported that the long-term average groundwater pumping in the Santa Clara Subbasin is 103,000 AFY¹. Over the past twenty years, the City extracted on average less than 1% of this total at 589 AFY. Historical groundwater metered data in Sunnyvale from 2011 to 2018 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)
2011*	467
2012*	142
2013*	123
2014*	2,064
2015*	148
2016**	152
2017**	119
2018**	106

*Source: 2015 UWMP, Table 6-3

**Source: City of Sunnyvale

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 the SCVWD owns the pipeline and is the wholesaler of recycled water from 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 in a series of phases based on the *Feasibility Study for Recycled Water Expansion Report* (Hydroscience, 2013).

The Project is not currently served by the recycled water system and was not identified in the Hydroscience (2013) report as a potential recycled water customer.

3.2 Projected Supplies and Supply Reliability

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

¹ SCVWD Groundwater Management Plan, 2016

Table 3-3: Projected Water Supplies (AFY)

Water Supply	2020	2025	2030	2035
SFPUC Purchased Water	11,124	12,266	12,266	12,266
SCVWD Purchased Water	10,642	11,202	11,762	12,614
Local Groundwater Wells	448	336	336	336
Recycled Water	1,456	1,567	1,680	1,680
Total	23,670	25,373	26,045	26,898

3.2.1 SFPUC

The reliability of the San Francisco RWS is discussed in detail in the 2015 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.

The SFPUC has analyzed past system yields to identify periods with single and multiple dry-years. The SFPUC has translated these dry-year projections into reductions to the total 184 MGD water supply available to the BAWSCA member agencies. SFPUC’s projections indicate that a 17% system-wide reduction in supply will occur in a single dry-year and up to a 28% system-wide reduction will occur in multiple dry-years².

3.2.2 SCVWD

The SCVWD has developed a 2015 UWMP to discuss the potential threats to water supply including climate change, local fisheries operations, invasive species damage, earthquake, environmental regulations, and reduced groundwater production. The SCVWD is also planning to update its Water Supply and Infrastructure Master Plan to identify projects to meet demands in 2040. The SCVWD aims to limit dry year reductions to no more than 10% through projects and programs to be identified in the updated Water Supply and Infrastructure Master Plan.

² SFPUC UWMP, 2015

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 the Santa Clara Valley Water District (SCVWD) meet the projected water demands throughout the planning period, as shown in Table 4-1 below. Supply from the SCVWD, groundwater, and recycled water represent expected supply from the Table 7-4 in the 2015 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 1% increase in demand over the 2015 UWMP projected demand.

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

Supply Source	Year			
	2020	2025	2030	2035
SFPUC ¹	11,453	12,595	12,595	12,595
SCVWD ²	10,642	11,202	11,762	12,614
Groundwater ²	448	336	336	336
Recycled Water ²	1,456	1,568	1,680	1,680
Supply Total	23,999	25,701	26,373	27,225
2015 UWMP Demand ³	23,670	25,372	26,044	26,896
Project Demand	329	329	329	329
Demand Total	23,999	25,701	26,373	27,225
Difference (% demand)	0	0	0	0

Source: UWMP, 2015, Table 7-4

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 2015 UWMP and does not necessarily reflect the maximum supply available.
3. 2015 UWMP Demand is based on Table 7-4 in the 2015 UWMP.

4.2 Reliability of Water Supply

During a single dry year, the City's water supply contracts with the SFPUC and SCVWD meet the projected water demands throughout the planning period, as shown in Table 4-2 below. Similar to the normal year analysis, supply from the SCVWD, groundwater, and recycled water represent expected supply from the Table 7-5 in the 2015 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.

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

Supply Source	Year			
	2020	2025	2030	2035
SFPUC ¹	11,453	12,595	12,595	12,595
SCVWD ²	10,642	11,202	11,762	12,614
Groundwater ²	448	336	336	336
Recycled Water ²	1,456	1,568	1,680	1,680
Supply Total	23,999	25,701	26,373	27,225
2015 UWMP Demand ³	23,670	25,372	26,044	26,896
Project Demand	329	329	329	329
Demand Total	23,999	25,701	26,373	27,225
Difference (% demand)	0	0	0	0

Source: UWMP, 2015, Table 7-5

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 7-5 in the 2015 UWMP and does not necessarily reflect the maximum supply available.
3. 2015 UWMP Demand is based on Table 7-5 in the 2015 UWMP.

Under multiple dry year conditions, projected water demands in the planning period can be met with the projected SFPUC and SCVWD supplies, 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 SCVWD, and recycled water represent expected supply from Tables 7-6 to 7-9 in the 2015 UWMP. Groundwater supply increases to meet the incremental increase in demand results from the Project up to the safe yield of 8,000 AFY.

Should supply decrease, the City would implement its staged Water Shortage Plan, described in detail in the 2015 UWMP. The Contingency Plan includes a mix of voluntary and mandatory rationing actions and can mitigate shortfalls of up to 50%. Supply deficits are to be compensated for with increased conservation and consumption restrictions, according to the 2015 UWMP.

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

Supply Source	2020			2025			2030			2035		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
SFPUC ¹	11,124	9,812	9,812	12,266	9,812	9,812	12,266	9,812	9,812	12,266	9,812	9,812
SCVWD ¹	10,642	10,200	10,200	11,202	10,200	10,200	11,762	10,200	10,200	12,614	10,200	10,200
Groundwater ²	777	2,850	3,167	665	4,233	4,345	665	4,851	5,022	665	5,556	5,578
Recycled Water ¹	1,456	1,478	1,501	1,568	1,590	1,613	1,680	1,680	1,680	1,680	1,680	1,680
Supply Total	23,999	24,340	24,680	25,701	25,835	25,970	26,373	26,543	26,714	27,225	27,248	27,270
2015 UWMP Demand ³	23,670	24,011	24,351	25,372	25,506	25,641	26,044	26,214	26,385	26,896	26,919	26,941
Project Demand	329	329	329	329	329	329	329	329	329	329	329	329
Demand Total	23,999	24,340	24,680	25,701	25,835	25,970	26,373	26,543	26,714	27,225	27,248	27,270
Difference (% demand)	0	0	0	0	0	0	0	0	0	0	0	0

Source: UWMP, 2015, Tables 7-6, 7-7, 7-8, and 7-9

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. 2015 UWMP Demand is based on Table 7-6, 7-7, 7-8, and 7-9 in the 2015 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 at the Project sites to 444 AFY at build-out with a net incremental increase of 329 AFY. As the currently adopted Downtown Specific Plan (DSP) did not account for the in development densities proposed at the Project sites, the increase in water use within the Project area has not been accounted for in the projected growth in water use shown in the 2015 UWMP. Five of the six project sites propose to meet LEED Gold or Silver, which may reduce actual onsite water demand. The Project results in approximately 1% increase in demand over the 2015 UWMP projected demand in all years.

The City of Sunnyvale water service has sufficient existing water supply to fully support the Project under normal, single dry, or multiple dry water years. The City is not projected to experience supply shortfalls under normal and single dry year conditions, assuming the City can use its full right of 14,100 AFY of SFPUC water. Under multiple dry years, the City is not projected to experience supply shortfalls, assuming the City can use groundwater supplies up to to the safe yield of 8,000 AFY. If SFPUC or groundwater supplies are reduced during dry years, the City may need to 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

Model Water Efficient Landscape Ordinance, September 10, 2009

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

Infrastructure Engineering Corporation:

City of Sunnyvale Water Utility Master Plan, November 2010

Wastewater Collection System Master Plan, December 2015

Michael Baker International:

Water Supply Assessment for Sunnyvale General Plan – Land Use and Transportation Element (LUTE), November 2015

San Francisco Public Utilities Commission:

2015 Urban Water Management Plan, <https://sfwater.org/index.aspx?page=75>, April 2016

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.

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

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

**Appendix B: City of Sunnyvale Council Resolution Approving the Water Supply Assessment
for the Downtown Specific Plan Amendments Project**

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