

CARIBBEAN DRIVE DEVELOPMENT PROJECT

SB 610 WATER SUPPLY ASSESSMENT



Sunnyvale



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Caribbean Drive Development Project SB 610 Water Supply Assessment

Prepared for



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Prepared by:



Prepared for:
The City of Sunnyvale



Approved on

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SUMMARY OF FINDINGS

The water demands of the proposed commercial development project located at 100 and 200 West Caribbean Drive (Proposed Project) are incorporated within the City of Sunnyvale's (City) anticipated future customer demands of approximately 26,896 acre-feet per year, which is satisfied by the City's water supply portfolio (see **Section 3**). Therefore, this Water Supply Assessment's sufficiency analysis relies upon the City's 2015 UWMP representation of water supply reliability (as summarized in **Section 3**), and concludes that sufficient water is available to meet the needs of the Proposed Project. The conclusion that sufficient water is available rests on the following:

- ◆ The Proposed Project is constructed in similar manner to the representations provided in **Section 1**, resulting in a water demand similar to the estimate.
- ◆ The City's representation of water supply reliability from Santa Clara Valley Water District and San Francisco Public Utility Commission remains as characterized in the 2015 UWMP.
- ◆ The City maintains its Water Shortage Contingency Plan (WSCP), an element detailed in the 2015 UWMP, to assure City water needs are met according to the WSCP during times of unforeseen shortage. Once complete, the Proposed Project will be subject to the requirements of the WSCP as a water customer of the City.

SECTION 1 – PROJECT INTRODUCTION

1.1 INTRODUCTION

As the lead agency under the California Environmental Quality Act (CEQA), the City of Sunnyvale (hereafter referred to as the “City”) is assessing the potential environmental impacts associated with a proposed commercial development project located at 100 and 200 West Caribbean Drive. To support the CEQA analysis, a Water Supply Assessment (WSA) for the proposed development is necessary (hereafter referred to as the “Proposed Project”).

Statutory Background

Enacted in 2001, Senate Bill 610 added section 21151.9 to the Public Resources Code requiring that any proposed “project,” as defined in section 10912 of the Water Code, comply with Water Code section 10910, et seq. Commonly referred to as a “SB 610 Water Supply Assessment,” Water Code section 10910, et seq. outlines the necessary information and analysis that must be included in an environmental analysis of a project to ensure that proposed land developments have a sufficient water supply to meet existing and planned water demands over a 20-year projection.

Proposed projects requiring the preparation of a SB 610 water supply assessment include, among others, residential developments of more than 500 dwelling units, shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space, commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space and projects that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.¹

The Proposed Project requires a WSA because it exceeds 250,000 square feet of floor space and will employ more than 1,000 people, as discussed below.

The WSA will be incorporated into the CEQA document that is being prepared for the Proposed Project.²

Document Preparation and Approval

The WSA law requires that the lead CEQA agency – in this case, the City of Sunnyvale – identify a “public water system”³ that will serve the project, and further requires the lead CEQA agency to request that each identified public water system prepare a WSA for the project. If the lead agency is not able to identify a public water system that may supply water for the project, the lead agency must prepare the WSA itself after consulting with “any entity serving domestic

¹ Water Code § 10912, subdivision (a).

² Water Code § 10911(b).

³ A “public water system” is a water system that provides water for human consumption that is permitted and regulated by the California Environmental Protection Agency, Division of Drinking Water.

water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.”⁴

In this case, the City has prepared the WSA because the City is the primary local water supplier and would serve the Proposed Project. The Proposed Project currently lies within the City’s water service area. This document provides the necessary information for the City to make its determinations and to comply with the assessment of water supply sufficiency as required by statute.

Document Organization

This WSA supports the Proposed Project’s environmental review process and analyzes the sufficiency of water supplies to meet projected water demands of the Proposed Project through the required 20-year planning horizon. The WSA is organized as follows:

Section 1: Project Introduction. This section provides an overview of WSA requirements, and a detailed description of the Proposed Project, especially the land-use elements that will require water service.

Section 2: Proposed Project Estimated Water Demands. This section describes the methodology used to estimate water demands of the Proposed Project and details the estimated water demands at build-out of the Proposed Project.

Section 3: Water Supply Characterization. This section characterizes the City’s water supply portfolio that will serve the Proposed Project along with other current and future water demands, and provides necessary information for normal, single dry, and multiple dry year conditions.

Section 4: Sufficiency Analysis. This section assesses whether sufficient water will be available to meet the Proposed Project water demands, while recognizing existing and other potential planned water demands within the City service area. To provide the necessary conclusions required by statute, the analysis integrates the demand detailed in Section 2 with the characterization of City’s water supply portfolio detailed in Section 3.

1.2 PROPOSED PROJECT DESCRIPTION

The Proposed Project is a redevelopment project on approximately 40 acres located at 100 and 200 West Caribbean Way, within the City’s Moffett Park Specific Plan area. The project site is located on the south side of W. Caribbean Way between Mathilda Avenue and Borregas Avenue and is bisected by the Santa Clara Valley Water District’s West Channel outfall. The 100 W. Caribbean site is bounded by W. Caribbean Drive on the north, Borregas Avenue on the east,

⁴ Water Code § 10910(b).

Caspian Court on the south and the SCVWD⁵ West Channel on the west. The 200 W. Caribbean site is bounded by W. Caribbean Drive on the north, the SCVWD west channel on the east, Bordeaux Drive on the south and Mathilda Avenue on the west. The project proposes to demolish 10 existing single story commercial buildings and build two five story buildings totaling 1,041,890 square feet, a four level, 371,034 square foot parking garage and a 79,200-square foot Central Utility Plant to support the completed project (see **Figure 1-1**). The Proposed Project is located within the Moffett Park Specific Plan District,⁶ and includes many unique features, including rooftop and vertical landscape elements and native plantings (see **Figure 1-2**). The Proposed Project will be LEED certified and will use recycled water to irrigate the Proposed Project's planned landscaping.

Water demands associated with the Proposed Project (as detailed in Section 2) were generally addressed in the City's 2015 Urban Water Management Plan (UWMP) and in the City's 2010 Water Utility Master Plan (WUMP) as part of the City's anticipated overall commercial and industrial growth and redevelopment. This WSA relies on the analysis completed in the UWMP and the WUMP, which was foundational to the demand assumptions in the UWMP, as well as regional planning documents of the City's wholesaler water supplier and the local groundwater sustainability agency.

⁵ Santa Clara Valley Water District

⁶ The Moffett Park Specific Plan District was established by the City in 2004 as defined in the City Municipal Code, Chapter 19.29.

Figure 1-1 – Proposed Project Location and Layout

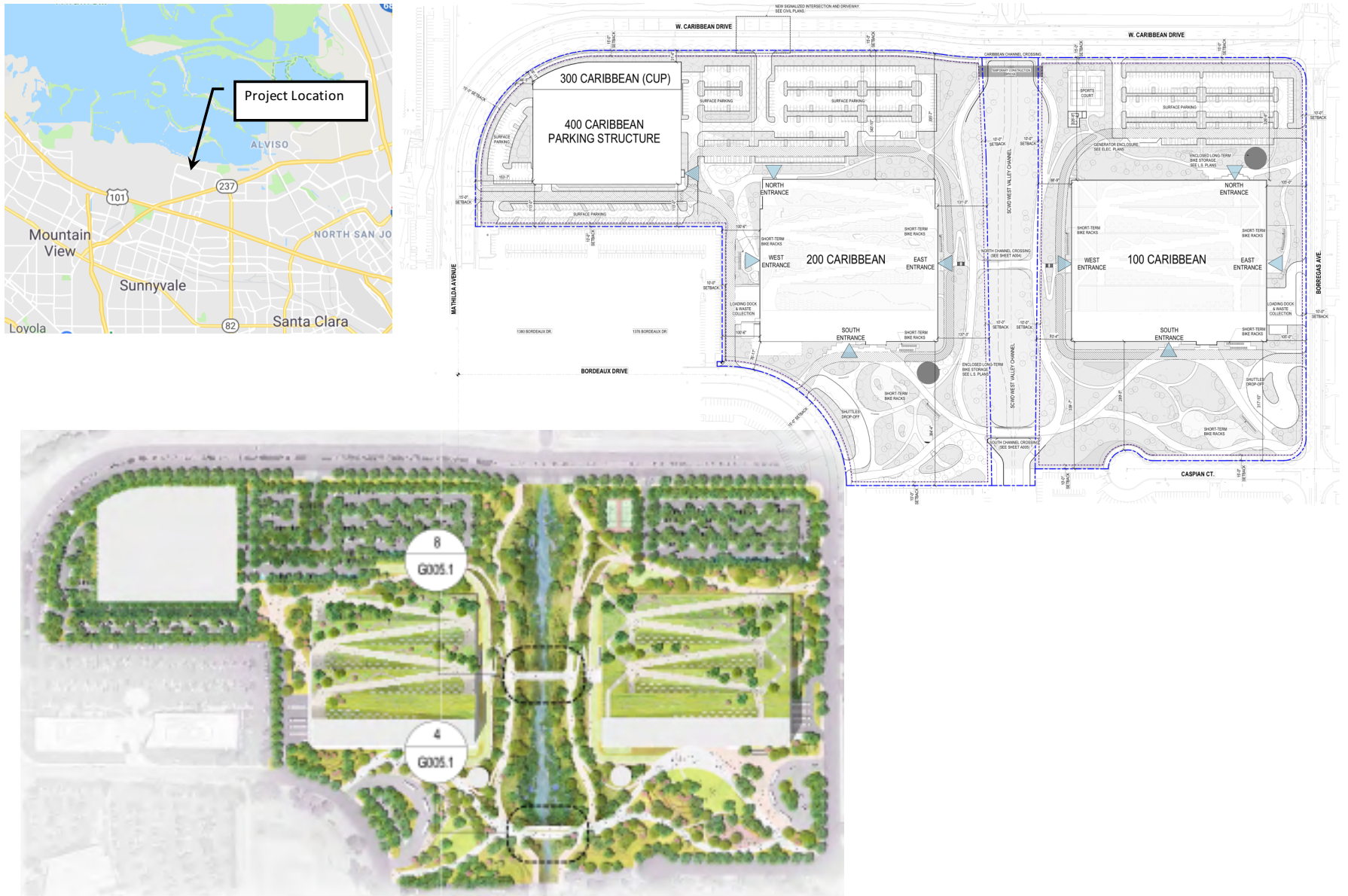
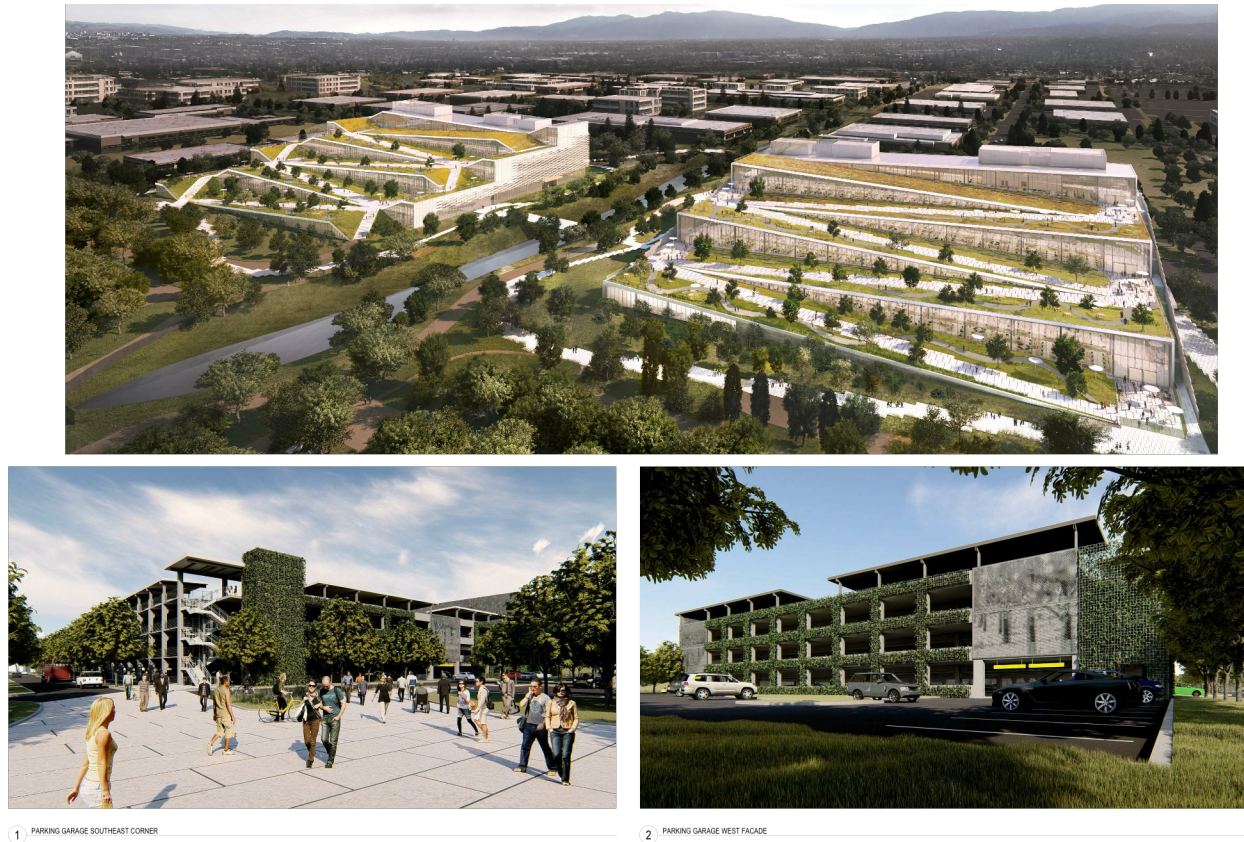


Figure 1-2: Rooftop and Vertical Landscape elements
(Source: July 11, 2018 Planning Submission Packet)



Overall, the Proposed Project includes over one million square feet of office space to employ nearly 5,000 people⁷, with over 2,000 parking spaces, a “living roof” and various other project attributes.

1.3 PROPOSED PROJECT PHASING

The proposed project is anticipated to build out completely within a couple of years following the start of construction. As such, there is no phasing associated with the demand calculations for this project. This demand is included in the projected annual water demands presented in **Section 2**.

⁷ Personal communication: email on 2/15/19 from Ryan Kuchenig, City Senior Planner.

SECTION 2 – PROPOSED PROJECT ESTIMATED WATER DEMANDS

This section describes the methodology, and provides the supporting evidence used to derive the Proposed Project’s estimated annual water demand. This section includes a discussion of:

- ◆ Unique unit demand factors for Proposed Project’s domestic and irrigation demand projections
- ◆ Estimate of total Proposed Project water demand at build-out

For the purposes of calculating water demand, build-out is expected to occur within 5 of starting construction.

2.1 DEMAND FACTOR DEVELOPMENT

As detailed in **Section 1**, the Proposed Project is planned as a technology campus, with a focus on standard office space for the applicant’s technical-focused employees. The specific planned uses are described as an office space with associated facilities including food service and gym features. To understand the water needs of the entire Proposed Project, unique demand factors that correspond with each unique project element are necessary. This subsection presents the methodology for determining the unit water demand factors that become the basis of the Proposed Project water demand estimates.

Values developed for each distinct water use element are based on several sources of information as detailed in the following subsections.

2.1.1 Current and Future Mandates

There are several considerations that affect the development of unit water demand factors, ranging from state landscape mandates to changes in the plumbing and building codes. The most important factors for this analysis are described below.

2.1.1.1 Water Conservation Objectives

In 2009 Senate Bill No. 7 (SBX7-7) became law, which established a statewide goal of achieving a 20 percent reduction in urban per capita water use by 2020 for urban retail water suppliers.⁸ Since the Proposed Project will be completed beyond 2020, the City’s conservation actions to achieve the statutory requirements will already be in effect.⁹

The efforts undertaken by the City’s wholesale water suppliers, the City, and throughout the State by other urban retail suppliers to comply with this statute, though not directly, will affect

⁸ California Water Code § 10608.20

⁹ The Proposed Project is commercial, so does not contribute to the City’s population. Yet, its demand will be factored into the future per-capita values for the City. Given the City’s already sizeable annual demand in comparison to the Proposed Project, it is unlikely this project noticeably effects the reduction target either in a negative manner.

the proposed project's use of appliances, fixtures, landscapes and other water using features, through changes or additions to City ordinances as well as State law and/or through an emerging "conservation ethic" developing throughout the State.¹⁰

2.1.1.2 Indoor Infrastructure Requirements

In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (hereafter the "CAL Green Code") that requires the installation of water-efficient indoor infrastructure for all new projects beginning after January 1, 2011. CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations. The Cal Green Code was revised in 2013 and again in 2016, and will be again in 2019, as part of a 3-year update cycle, however these later additions have focused on energy efficiency and have not had the substantial implications to the water use already contemplated by the 2010 Cal Green Code.¹¹ The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure. The Proposed Project must satisfy the indoor water use infrastructure standards necessary to meet the CAL Green Code.

The CAL Green Code requires nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. The Proposed Project will satisfy one of these two requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, or other fixtures as well as Energy Star and California Energy Commission-approved appliances.

Furthermore, the Proposed Project intends to achieve LEED certification, which will entail water efficiency measures commensurate with the CAL Green Code.

2.1.1.3 California Model Water Efficient Landscape Ordinance and County Ordinances

The Water Conservation in Landscaping Act was enacted in 2006, and has since been revised and expanded multiple times by Department of Water Resources (DWR) to result in today's Model Water Efficient Landscape Ordinance (MWELO).¹² In response to the Governor's executive order dated April 1, 2015, (EO B-29-15), DWR updated the MWELO and the California Water Commission approved the adoption and incorporation of the updated State standards for MWELO on July 15, 2015.¹³ The changes included a reduction to 45% for the maximum amount of water that may be applied to a landscape for non-residential projects, which

¹⁰ In May 2016, Governor Brown issued Executive Order B-37-16 entitled "*Making Water Conservation a California Way of Life*." This further illustrates the growing water conservation ethic in the state. In May 2018, Governor Brown signed into law SB 606 and AB 1668 that effectively implement the direction in the May 2016 Executive Order.

¹¹ "The CAL Green Code is evaluated for updates during the Triennial Code Adoption Cycle. HCD evaluated stakeholder input, changes in technology, implementation of sustainable building goals in California, and changes in statutory requirements. As such, the scope of CAL Green has continually increased and built on previsions cycles revisions. <https://www.energy.ca.gov/title24/2019standards/>

¹² Gov. Code §§ 65591-65599

¹³ These updated changes have been incorporated into California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 2.7, Sec. 490-495.

effectively reduces the landscape area that can be planted with high water use plants. The MWELO applies to all types of new construction with a landscape area greater than 500 square feet (the prior MWELO applied to landscapes greater than 2,500 sf).¹⁴ For the purposes of this WSA it is assumed that the City will require landscaping plans to comply with MWELO as required by law.¹⁵

As the proposed project intends to irrigate with Recycled water from the City's Waste Water Reclamation Facility, the water efficiency restrictions are significantly relaxed under the state MWELO guidelines.

2.1.1.4 Metering, Volumetric Pricing, and Water Budgets

California Water Code §525 requires water purveyors to install meters on all new service connections after January 1, 1992. California Water Code §527 requires water purveyors to charge for water based upon the actual volume of water delivered if a meter has been installed. The City currently bills customers on a volumetric basis, though this action alone does not necessarily reduce water use.

2.1.1.5 Project Specific Restrictions that Impact Potable Water Use

The Proposed Project plans for a number of specific design features that result in limits to future water use and encourage rainwater percolation. These include the following:

- ◆ *Limited Hardscape Area:* The limitation of the size of impermeable area will result in water percolating into the water table.
- ◆ *Recycled Water for Landscape Irrigation:* The outdoor water demands will be met with recycled water reducing the impact on the potable water system.
- ◆ *Indoor Water Use Efficient Fixtures:* The indoor water fixtures will include low flow toilets, low flow shower heads in the gym area, and waterless urinals to comply with CAL Green and to meet LEED requirements.

Collectively these minor restrictions add up to an effective potable water use reduction strategy.

2.2 PROPOSED PROJECT ESTIMATED WATER DEMAND

This subsection describes the methods used and the values estimated for unit water demand factors for the Project. Indoor demand factors are represented as the quantity of water in gallons per year per square foot (gpy/sf). Outdoor demand factors are represented as the quantity of water in acre-feet per acre (af/ac) per year.

¹⁴ CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.

¹⁵ The City's Landscaping Ordinance is found in Chapter 19.37.050 of the Sunnyvale Municipal Code and has been updated to conform with the State's MWELO.

The indoor and outdoor components are ultimately combined into a total project demand detailing each of the land-use categories.

2.2.1 Indoor Potable Demand Factors

This subsection discusses the indoor elements of the Proposed Project. The Proposed Project includes a number of demands characteristic of a modern technology campus. These are addressed below.

- *Technology Related Office Space:* The Proposed Project anticipates the majority of the floor space to be traditional office space. Water use data for office space is readily available and well defined, though varies widely with building age and function. The Proposed Project will incorporate the most efficient fixtures and appliances, as required by the CAL Green Code and to achieve desired LEED certification. As such, this WSA uses a national average water use factor of 15 gpy/sf (gallons per year per square-foot), reflecting similar new and efficient office buildings.¹⁶ For the planned 1,041,890 square feet of office space, the water demand is estimated to be approximately 15.6 million gallons per year – or about 48 acre-feet annually.
- *Onsite Food Service:* The Proposed Project includes onsite food service which will provide sit down dining for employees. Based on national averages 10.1 gallons per meal per day multiplied by 0.33 meals per employee per day.¹⁷ When taken with the average number of days worked per year, an estimate for total water potable demand for food service can be calculated. For the Proposed Project, the onsite food service is expected to use as much as 18 acre-feet annually.
- *Onsite Fitness Facilities:* The Proposed Project is similar to other modern technology campuses with the inclusion of an onsite gym facility. The gym facility being located onsite means that the incremental increase in water use is tied to shower use and laundering, if towel service is offered. Based on modern showerhead efficiency of 1.75 gpm, typical institutional shower length of 5 minutes, and estimated gym usage by employees of 10% per day, a typical gym water demand can be determined.¹⁸ In total gym water use adds approximately 5 acre-feet annually.¹⁹

¹⁶ US Energy Information Administration Commercial Buildings Energy Consumption Survey
www.eia.gov/consumption/commercial/data

¹⁷ Pacific Institute Urban Water Use Efficiency - https://pacinst.org/reports/urban_usage/appendix_e.pdf

¹⁸ Data derived from multiple sources including: http://www.hcd.ca.gov/building-standards/calgreen/docs/HCDSHL605_2016.pdf https://pacinst.org/reports/urban_usage/appendix_d.pdf and internal estimates.

¹⁹ Water demand associated with laundering is low due to the efficiencies of modern extractor type commercial washers with internal recycling. 1 lbs./towel and 1.5 gallon per lbs. of fabric results in approximately 0.05 AFY of demands. http://www.allianceforwaterefficiency.org/Health_Clubs_Introduction.aspx

2.2.2 Outdoor Landscape Area

The Proposed Project's landscaping will be irrigated with recycled water provided by the City and already available at the project location. Per a preliminary water budget calculation provided by the applicant, the Proposed Project anticipates 811,951 square-feet of landscape area. The following landscape elements are planned, accompanied by estimated percentages of the total landscape area based upon visual assessment of applicant submitted documents:²⁰

- ♦ *High Water Use Turf Areas:* This landscape area is located in key landscape areas for the purpose of establishing specific visuals and to provide outdoor seating and recreation. This turf area totals approximately 10% of the total landscape area.
- ♦ *Rooftop Landscape Areas:* This landscape area is located on the roofs of the 3 main office buildings. The landscaping will include trellis with climbing landscape to put greenscape on vertical building surfaces. This area totals approximately 30% of the total landscape area.
- ♦ *Low to Medium Water Use Landscape Areas:* This landscape area is located south of surrounding the buildings as well as in the larger parking areas. This area totals approximately 30% of the total landscape area.
- ♦ *Low Water Use Landscape Areas:* This landscape is located around in the outlying parking areas, interspersed in the low-medium landscape area, and located in the drainage channel setbacks the bisect the Proposed Project. This area totals approximately 30% of the total landscape area.

Due to the use of recycled water, landscape irrigation limits under MWELo are essentially not applicable, allowing the entire area to be treated as "Special Landscape Areas" as defined by MWELo and the City's Municipal Code and using an equivalent ETo of 1.0 instead of a fraction.²¹ According to the City's water budget calculator, the ETo is 45.30 inches per year.²² Using the City's stated equation for the Maximum Applied Water Allowance (MAWA) for non-residential landscapes, the following is estimated as the landscape water demand:

$$\begin{aligned}\text{MAWA} &= (\text{ETo}) (0.62) [(0.45 \times \text{LA}) + (0.55 \times \text{SLA})] \\ \text{MAWA} &= (45.3) (0.62) [(0.45 \times 811,951) + (0.55 \times 811,951)] \\ \text{MAWA} &= 22,804,456 \text{ gallons per year} \\ \text{MAWA} &= \sim 70 \text{ acre-feet per year}\end{aligned}$$

²⁰ Landscape information was provided by the City and applicant, and includes information from review of the applicant's 9/19/2018 submission to the City and provided to Tully & Young via the City's sharepoint service on 2/15/19 from Ryan Kuchenig, and the applicant's landscape water budget calculations per the City's Municipal Code Chapter 19.37, and available here: <https://sunnyvale.ca.gov/civicax/filebank/blobdload.aspx?BlobID=23597>

²¹ City Municipal Code 19.37.030

²² The City's water budget calculator uses an ETo value referenced as "San Jose (Sunnyvale)" and listed as 45.30 inches per year. However, in the City's 2015 UWMP, CIMIS station 171 of Union City is used with a value of 44.8 inches per year. For this WSA, the higher value is assumed.

2.3 OTHER PROPOSED PROJECT WATER DEMANDS

This section describes the other incidental water demands which accompany a project such as the one described in this WSE

2.3.1 Construction Water Demands

Initiation of the Proposed Project will include site grading and infrastructure installation. These and other construction elements will require dust suppression and other incidental water uses. These are estimated to be nominal, and do not continue beyond the construction phases of the Project. For purposes of identifying incremental water demands, construction water is assumed to be 1 acre-feet per year. The Proposed Project is anticipated to be operating at full capacity and fully built within 5 years of breaking ground.

2.3.2 Non-Revenue Water Demands

The Proposed Project demand presented previously represents the demand for water at the project location. To fully represent the demand, distribution system losses must also be included. Often, distribution system losses represent water that is lost due to system leaks, fire protection, construction water, unauthorized connections, and inaccurate meters. Essentially, this is the water that is produced by the City that does not make its customers – either as a real loss or an apparent loss (e.g. such as may result when a customer meter underreports actual use). In most instances, the predominant source of distribution system losses is from leaks that inevitably exist throughout the many miles of pipes and fitting that bring water to the City's customers.

The City reported a typical loss factor of between 4 and 8 percent to be representative of non-revenue water based on its historical data in the Sunnyvale 2015 UWMP.²³ For the purposes of this WSA, a loss factor of 6% is used. This value represents the additional water the City will need to treat, convey and deliver to meet the Proposed Project's estimated demand.

As summarized in **Table 2-1**, the Proposed Project's estimated water demand is 141 acre-feet per year, prior to the inclusion of water to meet non-revenue needs. Using the 6% value, the non-revenue demand is estimated to be 8.9 acre-feet per year, rounded to 9 acre-feet for purposes of this WSA.²⁴ The resulting total project demand is 150 acre-feet annually.

²³ City of Sunnyvale 2015 Urban Water Management Plan, p. 4-2.

²⁴ The application of the 6% factor is to the total demand that must be provided by the City, which, after being subtracted, results in the 139 acre-feet of water available at the Proposed Project location. Therefore, to estimate the non-revenue value, the estimated demand at the site of 139 acre-feet is multiplied by 6.4%. The result is 8.9 acre-feet, which is added to the 139 acre-feet to obtain the total Proposed Project estimated demand of 148 acre-feet.

Table 2-1 Estimated Proposed Project Water Demand

Project Water Use Element	Demand (af/yr) at Buildout
Traditional Office Space	48
Onsite Food Service	18
Onsite Fitness Facilities	5
Landscaping (all)	70
Subtotal potable water demand	71
Subtotal recycled water demand	70
Total	141
Non-revenue potable water @ 6%	4.5
Non-revenue recycled water @ 6%	4.5
Total potable water demand	76
Total recycled water demand	74
Total Proposed Project Demand	150

2.4 RELATIONSHIP TO CITY OF SUNNYVALE FORECAST WATER DEMAND

The 2015 UWMP included projections of future demand for both residential and non-residential land uses through 2035. **Table 2-2** shows growth trends depicted in the 2015 UWMP by customer type.

Table 2-2 – City Demand Forecast
(source: 2015 UWMP Table 4-1, p. 4-1)

Customer Type	2010	2015	2020	2025	2030	2035
Single family residential	7,023	5,449	7,619	7,796	7,563	7,351
Multi-family residential	8,309	4,452	5,575	5,705	5,534	5,379
CII	4,261	3,806	6,722	7,952	8,986	10,268
Irrigation (potable)	970	1,374	2,288	2,341	2,271	2,208
Other (Firelines)	911	9	10	10	10	10
Total Potable	21,474	15,090	22,214	23,804	24,364	25,216

The projected demands include growth in CII (Commercial, Industrial, and Institutional) demands from 3,806 acre-feet in 2015 to 10,268 acre-feet in 2035 – an increase of over 6,400 acre-feet. The foundational document used in the CII analysis appears to be the 2010 Water Utility Master Plan (WUMP).²⁵ The WUMP predicted non-residential growth for a 2033 buildout condition, and specifically included a “development reserve” for the Moffett Park Specific Plan area that anticipated future demands beyond what the WUMP was otherwise projecting based upon available plans at that time. Specifically, the WUMP noted:

²⁵ [add basis for this assertion]

“The City provided a list of specific plans which are estimated to be complete within the 2013 time increment. These developments are illustrated in Figure 4-3. A large part of this development will occur within the Moffett Park and Downtown areas ... It should be noted that the 5.44 M sqft “reserve” within Moffett Park is not expected to be developed until the ultimate (2033) time increment.” (WUMP, p. 88)

and;

“Table 4-13 shows that the non-residential area in Sunnyvale is currently 86% built out. After the completion of the specific plan development in the 2013 time increment projected non-residential build-out is approximately 88% of total non-residential build-out. With the exception of the “reserve” in Moffett Park, the remaining non-residential development is expected to be complete in 20 years. By this time non-residential build-out will be at 90%, which is consistent with the City’s most recent projections. The 5.44 M sqft “reserve” in Moffett Park is not expected to be developed until the ultimate time increment, which corresponds to the remaining 10% of non-residential build-out.” (WUMP, p. 108)

These excerpts help demonstrate that CII growth was explicitly expected to occur in the Moffett Park area through 2033. According to the WUMP, the “development reserve” was provided a water duty factor of 270 gallons per day per 1,000 square-feet (gdp/1,000sf). This translates to approximately 77 gpy/sf. As presented in Section 2, the Proposed Project water demand is estimated using a value of 15 gpy/sf for office space, plus water for other ‘non-office’ functions, including the food service, fitness, and landscaping. Combined, the estimated Proposed Project demand represents a water duty of about 26 gpy/sf.²⁶

The expected increase in CII demands reflected in the 2015 UWMP, and the indication that the forecast growth originated with the WUMP indicates that planned growth in the Moffett Park area is specifically recognized as part of the City’s CII growth.

Given the Proposed Project’s location within the Moffett Park area, the Proposed Project’s demand is therefore accommodated as part of the expected CII growth contemplated by the City. Therefore, the 2015 UWMP’s representation of supply and demand conditions can be used to evaluate the sufficiency of water supplies to meet the Proposed Project’s demand. The following sections present the City’s water supplies and characterization of sufficiency to meet its overall projected water demands.

²⁶ 1,041,890 sf of floor area plus 811,951 sf of landscaping, with a combined demand of 150 acre-feet/year.

SECTION 3 – WATER SUPPLY CHARACTERIZATION

The Proposed Project's forecast water demands presented in the prior section are expected to be fully met by water supplies provided by the City. The City has potable water provided under its existing wholesale water contracts with both the San Francisco Public Utility Agency (SFPUC) and Santa Clara Valley Water District (SCVWD), along with groundwater provided through City-owned production wells. The City also has recycled water provided by the Sunnyvale Water Pollution Control Plant that will be used to meet the Proposed Project's landscape irrigation demands.

The long-term reliability and characteristics of all of these water supplies have been detailed by the City and documented in its 2015 UWMP, and are summarized in this section. Furthermore, upon the preparation of this WSA in the spring of 2019, the supply characterizations presented in the 2015 UWMP (adopted by the City in 2016) remain unchanged.²⁷

3.1 CURRENT AND PROJECTED POTABLE WATER SUPPLIES

The City's forecast availability of potable supplies is summarized in Table 3-1. Historic use of these supplies has been split about 55% from SFPUC, 40% from SCVWD and 4% from wells, with the remainder comprised of recycled water.

Table 3-1 – City Potable Water Supplies
(source: 2015 UWMP Table 6-2, p. 6-2)

Water Supply	Total Right or Safe Yield	2020	2025	2030	2035	2040
SFPUC Purchased Water	14,100	11,124	12,266	12,266	12,266	12,266
SCVWD Purchased Water	10,200	10,642	11,202	11,762	12,614	12,726
Local Groundwater Wells	8,000	448	336	336	336	336
Recycled Water	-	1,456	1,567	1,680	1,680	1,680
Total		23,670	25,373	26,045	26,898	27,009

Notes:

1. The City has the ability to purchase additional available water from SCVWD during non-dry years when water is available.

Each of these water supplies are subject to a unique set of conditions based upon the terms of the underlying water rights, the regulatory environment, the contractual limitations, and wholesaler's ability to access and deliver the supplies. Within this framework, the City manages its water assets to meet all of its customers' demands.

²⁷ Personal communications: telephone call on March 5, 2019 with Mr. Mansour Nasser, Water & Sewer Manager, City of Sunnyvale.

3.1.1 SFPUC Supplies

SFPUC's primary supply is its Hetch Hetchy system on the Tuolumne River, but it also holds several water rights in local watersheds. About 85% of SFPUC's supply is from the Hetch Hetchy system, with all water supplies jointly considered the Regional Water Supplies (RWS). SFPUC has other local supplies including recycled water, raw water, and desalinated water, but these supplies are only made available to its retail customers. Only the RWS supplies are used for wholesale water service to customers such as the City. The portion of total RWS supplies available to the wholesale customers is presented in **Table 3-3** based on projected availability under average water supply conditions. Further discussion regarding availability under varying hydrologic conditions is provided later.

Table 3-2 - SFPUC Wholesale Supply Projections²⁸

Wholesale Purchase Request	Individual Supply Guarantee	Individual Supply Allocation	2020	2025	2030	2035	2040
City of Sunnyvale	14,091	11,862	11,123	12,266	12,266	12,266	12,266

3.1.2 SCVWD Contract

In 1976, the City and SCVWD entered into a 75-year contract. SCVWD manages local groundwater and surface water supplies as well as maintaining SFPUC, CVP, and SWP contracts. Groundwater banking activity, both locally and with Semitropic, transfers, and exchanges provide SCVWD with additional operational flexibility. SCVWD is the local groundwater management authority and supplies imported water as a wholesaler for the purposes of maintaining groundwater conditions. The SWP and CVP contracts make up approximately 40% of SCVWD's supply portfolio. By importing and banking water, SCVWD can prevent local groundwater pumping and facilitate recharge activity so as to maintain groundwater as a dry year supply for the region.

SCVWD's diverse range of supplies and management activities mean that despite variability in supply capacity due to hydrologic impacts on the water projects, the region is considered to have reliable long term supplies. **Table 3-3** presents the SCVWD supply considered to be available to the City of Sunnyvale.

Table 3-3 – SCVWD water supply projections

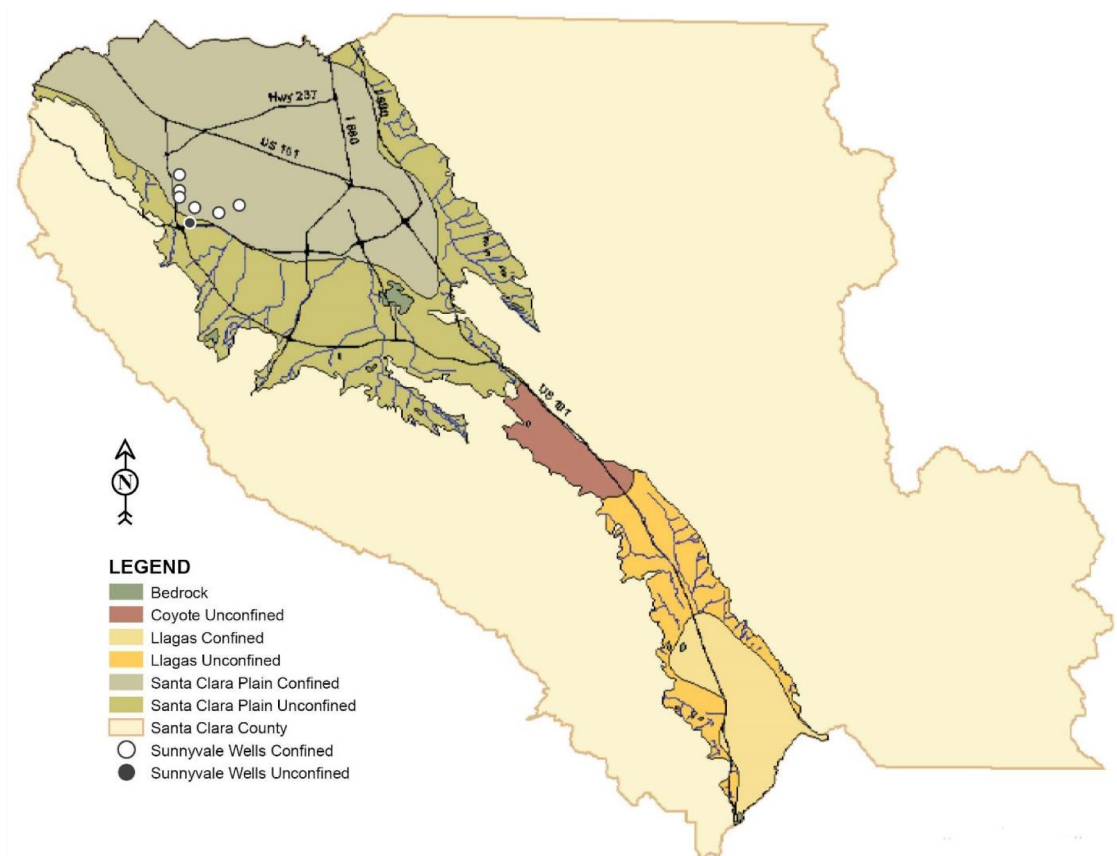
Wholesale Supply	2020	2025	2030	2035
City of Sunnyvale	10,642	11,202	11,762	12,614

²⁸ Values in Acre-feet, derived from SFPUC UWMP, Table 4-2, p. 4-12

3.1.3 Groundwater Supplies and Management

As noted in previously, regional groundwater management is generally a function of SCVWD, with the City operating its own wells within the regional context. This City maintains six operating wells and an additional emergency well which is left on stand-by. These wells are used for supplemental supplies to augment the SFPUC and SCVWD imported water. This City overlies the Santa Clara Subbasin, DWR Subbasin 2-9.02. The basin has long been a source for local water and as a result was at one time over pumped as use exceeded natural recharge. As imported water began to enter the area, groundwater pumping was reduced and the basin has since recovered. SCVWD now leads a number of recharge efforts and actively manages regional groundwater levels. **Figure 3-1** shows the groundwater basin from which the City pumps.

Figure 3-1 – Area Groundwater Basins²⁹



The location of several large cities, history of subsidence and over pumping, and risk of salt water intrusion resulted in DWR classifying the basin as high priority. SCVWD's activities maintain groundwater levels sufficiently for the basin to be considered secure and managed within the safe yield. **Figure 3-2** shows the historic groundwater levels as the recovered through

²⁹ 2015 UWMP Figure 6-2

an increase in imported supplies. **Figure 3-3** shows the land subsidence that resulted due to over pumping of the basin before water imports began.

Figure 3-2 – Area Groundwater Basins³⁰

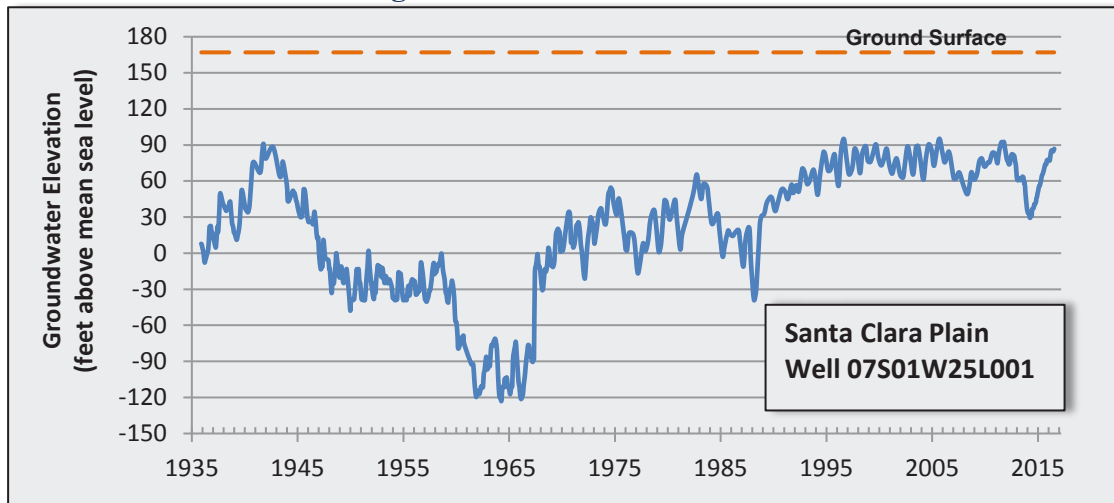
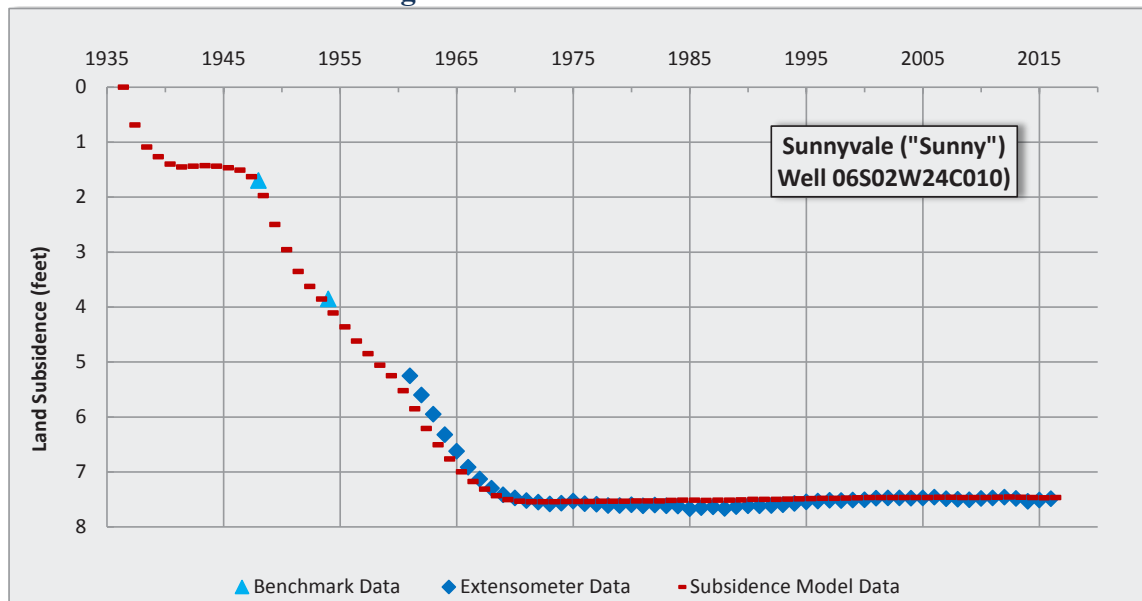


Figure 3-2 – Area Ground Subsidence³¹



The City's groundwater use has been typically low, increasing in drought years as part of the City's conjunctive use plans for its varied sources. Recent use has been in the range of a few hundred acre-feet per year with dry years seeing as high as a few thousand acre-feet. The City of Sunnyvale does not anticipate changing from this method of operation as it is an effective use of conjunctive water management and allows for the City to minimize the use of expensive water imports in dry years. **Table 3-4** shows the projected groundwater pumping in normal and driest

³⁰ 2016 SCVWD Groundwater Report figure 14

³¹ 2016 SCVWD Groundwater Report figure 18

years as shown in the City’s 2015 UWMP. The City’s existing groundwater infrastructure can supply these volumes already, with no required additions.

Table 3-4 – Projected Groundwater Use (values in acre-feet)³²

Groundwater Supply	2020	2025	2030	2035
Normal Year	448	336	336	336
Multi-Dry	2,838	4,016	4,693	5,249

3.1.4 Recycled Water

A significant aspect of the Proposed Project is the efficient landscape design and the use of recycled water for irrigation. The City of Sunnyvale has an established recycled water program and the purple pipe supply network already reaches the Proposed Project’s location. **Table 3-6** shows the projected recycled water production that will be available to meet the Proposed Project’s landscape demands, which are estimated at 70 acre-feet annually. Recycled water is produced at the Sunnyvale Water Pollution Control Plant, located near the Proposed Project.

Table 3-6 – Projected Recycled Water Supply³³

Recycled Supply	2020	2025	2030	2035
All Year Types	1,456	1,568	1,680	1,680

3.2 WATER SUPPLY SUMMARY

Tables 3-7 and 3-8 summarize the City of Sunnyvale’s reasonably available water supplies in normal and dry conditions as presented by the 2015 UWMP. These supplies may be manipulated as the water assets are needed to meet demands. In other words, as shown in **Section 4**, the City only utilizes water supplies from its water asset portfolio that it needs to meet its then-existing demands. Sunnyvale defines a dry year as the conditions of 1977 and the multi dry years as 2013-2015.³⁴

³² Derived from 2015 City of Sunnyvale UWMP Tables 7-4 to 7-9

³³ Derived from 2015 City of Sunnyvale UWMP Table 7-4

³⁴ 2015 UWMP Table 7-3

Table 3-4 – Normal Year Water Supply Availability³⁵

Source	2020	2025	2030	2035
SFPUC	11,124	12,266	12,266	12,266
SCVWD	10,642	11,202	11,762	12,614
Groundwater	448	336	336	336
Recycled Water	1,456	1,568	1,680	1,680
Supply Totals	23,670	25,372	26,044	26,896
Demand Totals	23,670	25,372	26,044	26,896
Difference	0	0	0	0
Difference as % Supply	0%	0%	0%	0%
Difference as % Demand	0%	0%	0%	0%

Table 3-5 – Dry Year Water Supply Availability³⁶

Source	Year 1 2035	Year 2 2036	Year 3 2037
SFPUC	12,266	9,812	9,812
SCVWD	12,614	10,200	10,200
Groundwater	336	5,227	5,249
Recycled Water	1,680	1,680	1,680
Supply Totals	26,896	26,919	26,941
Demand Totals	26,896	26,919	26,941
Difference	0	0	0
Difference as % Supply	0%	0%	0%
Difference as % Demand	0%	0%	0%

3.3 CITY OF SUNNYVALE WSA STATUTE COMPLIANCE

The purpose of this section is to outline the necessary information needed to be presented to serve water to the Proposed Project and to describe the other important issues required for this WSA under the Water Code.

3.3.1 Area Annexation

The Proposed Project is a redevelopment project located within the existing City water service area. No annexation is required for the City to serve the Proposed Project.

³⁵ 2015 UWMP Table 7-4

³⁶ 2015 UWMP Table 7-9

3.3.2 Financing Requirements

California Water Code requires a proposed project to identify the funding sources necessary to build the water system that will be used by the Proposed Project. Water Code Section 10910(d)(2)(b) states that: “*Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.*” The water supply infrastructure to be used by the City to serve the Proposed Project has already been constructed.

3.3.3 Infrastructure Capacity

The Proposed Project is not anticipated to require any additional infrastructure capacity. Any constraints would be local in nature and negotiated as part of the development agreement between the City and the Proposed Project

3.3.4 SB 1263 Requirements and Water Permit Modifications

In 2016, the California Legislature adopted Senate Bill 1263, which imposed stringent requirements for construction of new public water systems, in order to ensure that those systems meet certain technical, managerial and financial criteria for the protection of public health and safety. The Proposed Project will to be exempt from the SB 1263 requirements as the Proposed Project will not require the establishment of a new or separately permitted public water system.

SECTION 4 – SUFFICIENCY ANALYSIS

The analysis detailed in this section provides a basis for determining whether sufficient water supplies exist to meet the estimated water demand of the Proposed Project.³⁷ The WSA must provide a reasoned analysis of the likely availability of the identified supplies to serve the Proposed Project, while considering the demands of existing and other future planned-for demands on those supplies.³⁸ As detailed in **Section 2**, this WSA estimates the Proposed Project's water demand to be approximately 150 acre-feet per year at build-out during normal conditions (including non-revenue water demands), essentially split between potable and recycled water demands.

4.1 SUFFICIENCY ANALYSIS AND CONCLUSION

As presented in **Table 3-4**, the Proposed Project's demands are incorporated within the City's anticipated future customer demands of approximately 26,896 acre-feet, which is satisfied by the City's water supply portfolio (see **Table 3-4** and **Table 3-5**). Therefore, this WSA's sufficiency analysis relies upon the City's 2015 UWMP representation of water supply reliability (as summarized in **Section 3**), and concludes that sufficient water is available to meet the needs of the Proposed Project. The conclusion that sufficient water is available rests on the following:

- The Proposed Project is constructed in similar manner to the representations provided in Section 1, resulting in a water demand similar to the estimate.
- The City's representation of water supply reliability from SCVWD and SFPUC remains as characterized in the 2015 UWMP.
- The City maintains its Water Shortage Contingency Plan (WSCP), an element detailed in the 2015 UWMP, to assure City water needs are met according to the WSCP during times of unforeseen shortage. Once complete, the Proposed Project will be subject to the requirements of the WSCP as a water customer of the City.

³⁷ CWC § 10910 (c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

³⁸ *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 430-32.