APPENDIX F

WATER SUPPLY ASSESSMENT

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Technical Memorandum

HydroScience
Strategic Water Solutions

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To: Theresa Wallace, Principal-in-Charge

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Reviewed By: Mary Hoang, PE, Principal

Subject: 388 Vintage Park Drive, Foster City – Water Supply Assessment

Date: August 4, 2021

Executive Summary

California Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures that sought to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require that detailed information regarding water availability be provided to the city and county decision-makers prior to approval of large development projects. The purpose of providing such information is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing demands, anticipated demands from approved projects, and the demands of proposed projects.

The purpose of this Water Supply Assessment (WSA) is to perform an evaluation based on California Water Code (CWC) Section 10910 through Section 10915 in connection with the proposed 388 Vintage Park Drive Redevelopment project (Proposed Project). If approved, the Proposed Project would be constructed within the General Plan boundary of the City of Foster City (City). This WSA is not intended to reserve water, or to function as a "will serve" letter or any other form of commitment to supply water (see Water Code section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable City policies and procedures, consistent with existing law.

The City is served by the Estero Municipal Improvement District (EMID) which also serves the City of San Mateo's Mariners Island area. However, EMID is governed by the City's Council and the City's Public Works department manages and operates EMID. Henceforth, the water provider will be referred to as "EMID" and will be used when discussing water supplies. "City" will only refer to the City of Foster City and will be used in discussing land use planning or City specific information.

The Proposed Project estimated water demand was included in the 2020 Urban Water Management Plan (2020 UWMP or UWMP) beginning in 2022 and does not represent an increase in the projected demands. Pursuant to Section 10910 of the CWC and based on the analysis detailed in this WSA and the representations by the Proposed Project's proponents, EMID has determined that its current projected water supplies identified in the 2020 UWMP will be sufficient to meet the existing and projected annual water demands during normal years. However, projected annual water supplies during a single dry year or multiple dry years will be insufficient to meet UWMP projected annual water demands. The WSA assumes no implementation of the Water Shortage Contingency Plan which would further reduce water demands through water use restrictions or prohibitions, further reducing the gap between water demands and supplies.

To remain conservative in the analysis, existing/historic water usage for the site was not deducted from the Proposed Project's estimated water demands. Historic water usage for the site was estimated to be greater than the Proposed Project's estimated water demands by approximately 1.6 MG annually which would result in a decrease in the total water demands from what is shown in the UWMP and used in this WSA.

Based on EMID's 100% dependence on water supplies from a single wholesale supplier and anticipated cutbacks based on potential constraints as addressed in this WSA, shortfalls of up to 46% are projected for a single dry year and up to 54% in multiple dry years. Under all dry year conditions, EMID may need to impose water conservation measures, per EMID Municipal Code, Chapter 8.60, to reduce demand.

The following are the major findings that resulted from this evaluation:

- The estimated water demand of the Proposed Project is approximately 1.8 MG per year.
- Water demand within EMID's service area is not expected to exceed EMID's supplies in any normal year between 2020 and 2045 including demands from the Proposed Project.
- During Single and Multiple Dry Years, EMID's total annual water demand is expected to exceed EMID's water supplies from 2023 to 2045 regardless of the implementation of the Proposed Project.

Introduction

The Proposed Project, if approved, would be constructed at the intersection of Vintage Park Drive and Chess Drive, at the municipal boundary between Foster City and San Mateo. The City is reviewing the potential impacts of the Proposed Project. The Proposed Project encompasses 2.2-acres and includes redevelopment of an existing site which is currently a single story 10,120 square foot (sq. ft.) vacant commercial building (El Torito Restaurant) which closed in November 2018. The Proposed Project would result in demolition of the existing restaurant building and construction of an approximately 95,931 sq. ft., four-story (68-foot tall) life science building with ground level parking and other infrastructure improvements. The purpose of this WSA is to perform an evaluation of the Proposed Project in connection with CWC Sections 10910 through 10915.

Legal Requirements for the Water Supply Assessment

California SB 610 and SB 221 amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures that sought to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require that detailed information regarding water availability be provided by the water provider to the city and county planning and development decision-makers prior to approval of development projects, as defined below. The purpose of providing such information is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing demands, anticipated demands from approved projects, and the demands of proposed projects.

CWC Section 10912 defines "project" as any of the following:

- A proposed residential development of more than 500 dwelling units (DUs).
- 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 specified above.
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-DU project.
- If a public water system has fewer than 5,000 service connections, then ''project'' means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10% or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10% or more in the number of the public water system's existing service connections.

Although the Proposed Project does not meet the definition of a "project" as defined above, a WSA is being developed due to EMID's 100% reliance on the San Francisco Public Utilities Commission (SFPUC), as its sole wholesale supplier, which anticipates substantial rationing of EMID's water supply during dry years as addressed in detail in this WSA.

Preparation of Water Supply Assessment

The Proposed Project, located in the City of Foster City, is not subject to a WSA in accordance with the CWC but is subject to California Environmental Quality Act (CEQA). However, due to general concern regarding the impacts to water supply availability in drought years, EMID is preparing a WSA for the Proposed Project to document that potential impacts have been considered and evaluated.

City Council approved and adopted the 2020 Urban Water Management Plan in July 2021. The 2020 UMWP included and addressed this Proposed Project as it was proposed and evaluated before adoption of the UWMP.

This WSA relies on the data contained in and used to develop the 2020 UWMP to analyze the availability of EMID's water supply to serve the Proposed Project along with existing and planned future uses. Unless noted, all figures in this WSA are in million gallons (MG) and are for total water demand or supply.

The findings of this WSA will be included in the environmental review process. The City's approval, denial, conditional approval or any act on this WSA does not guarantee that the Proposed Project will be approved and does not obligate the City to approve, deny, conditionally approve, take any action, or make any decision on the Proposed Project application.

Purpose of Water Supply Assessment

The purpose of this WSA is to perform the evaluation, as defined by CWC Sections 10910 through 10915 (SB 610), in connection with the Proposed Project. This WSA is not intended to reserve water, or to function as a "will serve" letter or any other form of commitment to supply water (see CWC Section 10914), nor is it intended to meet the requirements of SB 221. The provision of water service will continue to be undertaken in a manner consistent with applicable City policies and procedures, consistent with existing law.

Description of Proposed Project

A general description of the Proposed Project location, proposed land uses, projected water demand, and proposed water supply is provided below.

Proposed Project Location

The location of the Proposed Project is approximately a 2.2-acre site located at 388 Vintage Park Drive in Foster City, San Mateo County. Foster City is located approximately 23 miles south of San Francisco, at the southwest end of the San Francisco Bay (Bay). The Proposed Project site is adjacent to the intersection of Vintage Park Drive and Chess Drive at the municipal boundary between Foster City and San Mateo. The Proposed Project site is bordered by the Gilead Sciences campus to the north and east, Home Depot warehouse store to the west, and Chess Drive retail restaurant development to the south (**Figure 1**).

The existing project site is currently developed with a single-story approximately 10,120 sq. ft. vacant commercial building. The existing building was constructed in approximately 1990 and was previously occupied by the El Torito Restaurant until November 2018. The Proposed Project would result in the demolition of the existing restaurant building and construction of an approximately 95,931-square-foot, four-story (68-foot-tall) Class B life sciences office and research and development laboratory space (50/50 office to lab ratio). The building will include a ground-level parking garage with approximately 188 vehicle parking spaces, as well as associated open space, circulation and parking, and infrastructure improvements.

FIGURE 1
CITY OF FOSTER CITY
388 VINTAGE PARK DRIVE REDEVELOPMENT WSA
PROJECT LOCATION MAP

HydroScience

Proposed Land Uses

The Proposed Project site is currently designated Research/Office Park in the City's General Plan. This designation is intended for areas containing office, research and development, and manufacturing establishments whose operations are clean and quiet. Mixed-use projects which include some retail and residential uses in addition to office and research uses may, under certain conditions, be considered compatible with this designation.

The Proposed Project site is located within the Commercial Mix District/Planned Development Combining District (C-M/PD). The C-M district is required to be used only in conjunction with the combining zone PD, which is designed to accommodate various types of development and allow flexibility of design that is in accordance with the objectives and spirit of the General Plan. The project site is also part of the Vintage Park General Development Plan, which designates the site for restaurant use.

Proposed Project Water Demands

As part of the WSA analysis, HydroScience reviewed projected demands prepared by Maddaus Water Management Inc. (MWM), historical water use data for the site, as well as water use factors developed as part of EMID's 2020 Water Distribution System Master Plan (Water Master Plan). Provided below is an assessment of the data.

Water Capacity Investigation (MWM): In October 2020, the developer retained MWM to estimate the water demands of the Proposed Project (**Table 1**). Unit water use factors for projecting water demand were based on City records as well as referencing 20+ years of experience from conducting audits for commercial buildings in Foster City. The resulting demand for the Proposed Project was 5.7 acre-feet per year (AFY, 1.8 MGY). This water usage estimation was included in the 2020 UWMP projections. This analysis did not include credit for the historic water usage for the site pre-2018 (before restaurant closure). However, as shown in **Table 2** on the following page, the historic usage for the site was, on average, 3.4 MG annually. Therefore, with the construction of the Proposed Project, the total demand for the site would result in a *decrease* of 1.6 MG annually compared to previous usage. Unit water use factors were based on water use data for similar buildings in Foster City (Gilead Sciences) which included landscape irrigation demands and office space cooling tower water usage. The MWM analysis is included in **Appendix A**.

Table 1: Estimated Annual Water Demand for Proposed Project Per MWM Assessment

Land Use Designation	Status	Use Type	Size	Units	Demand (MGY)	Demand (AFY)
R&D Space[1]	Proposed	Commercial	47,965	sq. ft.	1.2	3.7
Office Space[2]	Proposed	Commercial	47,965	sq. ft.	0.6	2.0
Total Demand (increase per year)					**1.8**	**5.7**

Source: Water Capacity Investigation for 388 Vintage Park Road, Foster City, Maddaus Water Management Inc., October 15, 2020
Notes:
1. Unit water use factor is based on 2014-2017 water use data from Gilead Sciences 355 Lakeside Drive. Includes landscape irrigation. Assumes 25 gpy/sq. ft. demand use factor.
2. Unit water use factor is based on 2014-2017 water use data from Gilead Sciences 309 Velocity Way. Includes landscape irrigation. Assumes 13 gpy/sq. ft. demand use factor. Also based on large office with cooling tower water use.
3. Historic usage was not included in analysis, so no existing water use is assumed.

Water Master Plan: In April 2020, HydroScience prepared the EMID Water Master Plan. Land-use based water use factors were developed using a combination of GIS mapping tools and water use data. Water use factors were developed using a combination of the GIS zone mapping for the baseline and 2040 condition, GIS parcel mapping, GIS vacant parcel mapping, GIS meter shapefile, as-built drawings for future developments, GIS water meter mapping, review of available aerial imagery data, and metered customer data from July 2012 through May 2017.

Water use factors were developed for the entire EMID service area according to existing land use zoning GIS maps. Depending on the customer type, the use factors were either in gpd/acre or gpd/DU. The Proposed Project and similar facility land use are considered "commercial" for the purpose of the Master Plan.

For the WSA analysis, the projected 2040 water use factor was used to estimate water demands for the Proposed Project. Based on the water use factor for the commercial use type, the estimated water demand of the Proposed Project is approximately 1.3 MGY. However, if the historic usage is taken into account, then the site would result in a *decrease* of 2.1 MG annually compared to previous usage. The estimated water demand based on land use-based demand factors, is included in **Appendix B**.

Table 2: Existing and Estimated Annual Water Demand for Proposed Project per Water Master Plan

Land Use Designation	Status	Use Type	Size	Units	Demand (MGY)	Demand (AFY)
R&D + Office Space[1]	Proposed	Commercial	2.2	acre	1.3	4.1
Historic Usage[2]	Existing	Commercial	2.2	acre	(3.4)	(10.4)
Net Annual Demand					**(2.1)**	**(6.3)**

Notes:
1. Unit water use factor is based on Master plan water use factor for commercial use type facilities. Includes landscape irrigation. Assumes 1,656 gpd/acre.
2. Historic usage is based on 2012-2017 metered usage for existing site (El Torito Restaurant) prior to closure in 2018, including landscape demands.

Summary: Under either condition, there would be no net increase in water demand. However, to be conservative, the projection made by MWM (without credit for historic water usage) will be used for this WSA. Therefore, the increase in water demand for EMID's service area, used for the WSA evaluation and included in the projections in the 2020 UWMP, will be 1.8 MG annually beginning in 2022.

Recycled Water

The Proposed Project will not use recycled water. EMID currently does not provide recycled water services and is in the process of evaluating the feasibility of a recycled water treatment facility and distribution system. Therefore, recycled water supplies are not available for use at the Proposed Project.

Projected Water Supply for Proposed Project

Water demands for the Proposed Project will be served using EMID's existing and future portfolio of water supplies as addressed in the 2020 UWMP and water supply section of this WSA. The inclusion of existing and planned future supplies is specifically allowed by the CWC.

Required SB 610 Determinations

The following determinations must be made, pursuant to SB 610.

Does SB 610 Apply to the Proposed Project?

Water Code section 10910(a)
Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act Division 13 (commencing with Section 21000) of the Public Resources Code, under Section 21080 of the Public Resources Code shall comply with this part.

Water Code section 10912
For the purposes of this part, the following terms have the following meanings:
(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.
(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
(4) A proposed hotel or motel, or both, having more than 500 rooms.
(5) 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.
(6) A mixed-use project that includes one or more of the projects specified in this subdivision.
(7) 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.

Based on the following assumptions, SB 610 only partially applies.

- The Proposed Project is subject to CEQA and an EIR is required.
- The Proposed Project does not meet the definition of a "Project" as specified in Water Code section 10912(a) (shown above). However, given the Proposed Project's (and EMID's) reliance on solely one wholesale supplier (SFPUC) for water supply and anticipated reduced rationing during dry years, a WSA is being developed by the City in order to document the consideration of potential impacts to the water supply.

Has an Assessment Already Been Prepared that Includes this Project?

Water Code section 10910
(h) Notwithstanding any other provision of this part, if a project has been the subject of a water assessment that complies with the requirements of this part, no additional water assessment shall be required for subsequent projects that were part of a larger project for which a water assessment was completed and that has complied with the requirements of this part and for which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has concluded that its water supplies are sufficient to meet the projected water demand associated with the proposed project, in addition to the existing and planned future uses, including, but not limited to, agricultural and industrial uses, unless one or more of the following changes occurs:

(1) Changes in the project that result in a substantial increase in water demand for the project.
(2) Changes in the circumstances or conditions substantially affecting the ability of the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), to provide a sufficient supply of water for the project.
(3) *Significant new information becomes available which was not known and could not have been known at the time when the assessment was prepared.*

The Proposed Project has not been the subject of a previously adopted WSA and has not been included in an adopted WSA for a larger project. Therefore, a WSA will be pursued for the Proposed Project.

Does SB 221 Apply to the Proposed Project?

Government Code section 65867.5
(c) A development agreement that includes a subdivision, as defined in section 66473.7, shall not be approved unless the agreement provides that any tentative map prepared for the subdivision will comply with the provisions of section 66473.7.

Government Code section 66473.7
(a) For the purposes of this section, the following definitions apply:
(1) "Subdivision" means a proposed residential development of more than 500 dwelling units, except that for a public water system that has fewer than 5,000 service connections, "subdivision" means any proposed residential development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections.
(b) (1) The legislative body of a city or county or the advisory agency, to the extent that it is authorized by local ordinance to approve, conditionally approve, or disapprove the tentative map, shall include as a condition in any tentative map that includes a subdivision a requirement that a sufficient water supply shall be available. Proof of the availability of a sufficient water supply shall be requested by the subdivision applicant or local agency, at the discretion of the local agency, and shall be based on written verification from the applicable public water system within 90 days of a request.
(i) This section shall not apply to any residential project proposed for a site that is within an urbanized area and has been previously developed for urban uses, or where the immediate contiguous properties surrounding the residential project site are, or previously have been, developed for urban uses, or housing projects that are exclusively for very low and low-income households.

In 2001, SB 221 amended State law to require that approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. Per California Government Code section 66473.7(a)(1), a subdivision means a proposed residential development of more than 500 DUs. The Proposed Project is not subject to the requirements of SB 221.

Who will Prepare the SB 610 Assessment for the Proposed Project?

Water Code section 10910
(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project.

Water Code section 10912
(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections.

The Proposed Project area is within the City boundary limits. The City of Foster City is served by EMID which also serves Mariner's Island, an area of the City of San Mateo. However, EMID is governed by the City's Council and the City's Public Works department manages and operates EMID. Therefore, the City is the identified party to prepare the WSA for the Proposed Project.

Does the City have an adopted UWMP and does the UWMP include the projected water demand for the Proposed Project?

Water Code section 10910
(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

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 50% of their normal supplies, and catastrophic interruptions of water supply. The City of Foster City is required to prepare an Urban Water Management Plan for EMID. The City's most recent Urban Water Management Plan (2020 UWMP) was adopted in July 2021. The 2020 UWMP is a projection of demands and supplies for 25 years through the year 2045.

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 EMID service area. The 2020 UWMP projected a moderate increase in water demand within EMID's service area due to historical water use, expected population and employment growth estimates, climatic variability, water conservation and other assumptions. The 2020 UWMP projected overall total water demand within EMID to increase from 1,596 MG in year 2020 to 1,805 MG in year 2045, a net increase of 209 MG (approximately 13%). This increase accounts for passive and active conservation measures.

The Proposed Project is a development in line with the site's General Plan Land Use Designation. The development was also specifically listed as a project under consideration by the City Council but not approved at the time of the adoption of the 2020 UWMP. However, the demands of the Proposed Project were included in the demand projections of the 2020 UWMP.

EMID's ability to meet the projected water demands for the Proposed Project, as defined by the City's 2020 UWMP, is described in this WSA.

EMID Water Service Area

Water Code section 10631 (Urban Water Management Plan Requirements)
(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

This section presents EMID's water service area including history and growth information. The information provided in this section references and/or is excerpted from the 2020 UWMP.

General Description

EMID serves a population of approximately 36,516 and is located on the San Francisco Bay Peninsula, midway between San Francisco and San Jose. The EMID service area is located approximately 10 miles south of the San Francisco International Airport and adjacent to the entrance of the San Mateo/EMID Bridge. The EMID service area consists of the City of Foster City and a portion of the City of San Mateo immediately adjacent to the west, referred to as the Mariners Island area. EMID's customers are mostly residential with a broad cross-section of offices, commercial businesses, biotech research and development businesses, and a small number of industrial businesses.

EMID purchases all of its potable water from the SFPUC Regional Water System (RWS) and is a member of Bay Area Water Supply and Conservation Agency (BAWSCA). Water distribution, water conservation, and maintenance of water quality are EMID's main water resource functions, as treated water purchased from the SFPUC RWS does not require further water treatment.

Current and Projected Population

Table 3 presents EMID's estimated 2020 and projected population. EMID's 2020 residential population is just over 36,500, based on the output from the California DWR Population Tool. Population projections for 2025 through 2040 are based on projections provided by the Foster City Community Development Department for the City of Foster City and the City of San Mateo Community Development Department for Mariners Island. The population projection for 2045 was interpolated based on the population data provided, resulting in an assumed an annual growth rate of approximately 0.62% between 2040 and 2045.

Table 3: EMID Existing and Projected Service Area Population

	2020	2025	2030	2035	2040	2045
Population Served	36,516	36,932	37,602	38,848	40,107	41,366

Notes:
1. Source: City of Foster City 2020 UWMP, Table 3-1 Population – Current and Projected.

Land Uses within Service Area

As of 2014, the existing land use within the City is a mix of 46% Residential; 19% Public and Semi-Public Streets; 17% Recreation, Open Space, and Lagoons; and 16% Commercial and Industrial. Land use in the service area within the City of San Mateo is a mix of Residential, Recreation, and Commercial. Today, the City of Foster City is largely built-out. The population is expected to increase modestly in the future due to planned redevelopment projects as described in the Foster City General Plan Land Use and Circulation Element adopted in 2016. The main goals of the redevelopment projects are to aggregate and redevelop both under-used properties and outdated buildings in the older commercial and industrial areas of the City and to make progress towards meeting housing goals established in the Foster City General Plan's Housing Element. Within the EMID service area, the City of San Mateo plans to potentially redevelop portions of the Bridgepointe Shopping Center allowing for modest increases in homes, jobs, and population.

Projected Employment

EMID employment numbers for 2020 and 2025-2040 projections (**Table 4**) were developed for the 2020 UWMP using Foster City Community Development Department projections for Foster City and City of San Mateo Community Development Department for Mariners Island. The employment projection for 2045 was interpolated based on the employment data provided, resulting in an assumed an annual growth rate of approximately 1.04% between 2040 and 2045.

Table 4: EMID Existing and Projected Employment

	2020	2025	2030	2035	2040	2045
Service Area Employment	30,122	33,938	38,855	41,137	43,434	45,731

Notes:
1. Source: City of Foster City 2020 UWMP, Table 3-3 Employment – Current and Projected.

Service Area Climate

The EMID service area is located within a region characterized by a Mediterranean climate with cool, wet winters and warm, dry summers. As shown in **Table 5**, rainfall in the area averages 18.8 inches per year and is generally confined to the wet season from late October to early May. The average reference evapotranspiration (ET_o) for the region is 44 inches per year. The ET_o is a standard measurement related to the water demand by plants in a specific region. Because the average annual ET_o is approximately 25 inches more than the average annual precipitation, and because 90% of the annual precipitation occurs between the months of November and April, growing turf or other plantings in this region requires a significant amount of irrigation during the dry season. This irrigation demand contributes to the overall and observed seasonal variation in water demand throughout the EMID service area.

Table 5: Average Monthly Climatic Conditions

Month	Average Temperature (ºF)		Standard Average ET_0 (inches)	Average Rainfall (inches)
	Min	Max		
January	39.5	58.4	1.4	4.2
February	41.8	61.9	2.0	3.41
March	43.7	65.5	3.3	2.71
April	45.4	69.9	4.4	1.19
May	48.9	74.3	5.4	0.43
June	52.5	79.6	6.0	0.13
July	54.9	82.2	6.2	0.02
August	54.8	81.7	5.4	0.04
September	53.2	80.6	4.4	0.16
October	49.1	74.7	3.1	0.93
November	43.5	65.4	1.7	2.02
December	39.9	58.8	1.2	3.51
Annual	**47.2**	**71.1**	**44.5**	**18.8**

Notes:
1. Source: City of Foster City 2020 UWMP, Table 3-4 Climate Characteristics.

Climate Change Considerations

Projections of climate change in California indicate a further intensification of wet and dry extremes and shifting temperature. Within the County of San Mateo, where EMID is located, the average temperature is expected to increase 3.2°F to 5.4°F by 2090.

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

Information regarding the impacts of climate change to the SFPUC RWS supply was provided by BAWSCA in coordination with SFPUC.

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

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

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

EMID Water Demands

Water Code section 10910
(c) (2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).
(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available 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 the public water system's existing and planned future uses, including agricultural and manufacturing uses.

Water Code section 10631 (Urban Water Management Plan Requirements)
(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:
(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.
(2) The water use projections shall be in the same five-year increments described in subdivision (a).

Some of the information provided in this section references and/or is excerpted from the 2020 UWMP.

Existing and Projected Water Demand

EMID's total water demand is equal to the total volume of potable water EMID purchases from SFPUC. EMID's total water demand includes water consumed by metered accounts in the service area (metered water use), unmetered water use, and the water that is lost within the distribution system (losses).

Potable water demand within the EMID service area is measured using water meters that are installed at each customer account. Records of historical and current water use at each account are maintained by the City's Public Works Department, in coordination with the Finance Department. Water demand within the EMID service area is tracked and reported on a monthly basis for the following sectors:

- **Single Family Residential:** Single-family, detached DUs that are individually metered.
- **Multi-Family Residential:** Two or more DUs contained within one building or several buildings within one complex. Water use is predominately for indoor water uses; irrigation water use for multiple family sites are usually separately metered and listed in the landscape sector.
- **Commercial (includes Institutional/Governmental):** Includes commercial customers that provides or distributes a product or service (Commercial) and connections dedicated to public

service, including schools and other government facilities (Institutional/Governmental). Landscape irrigation water use at these sites is usually separately metered and listed in the landscape sector.

- **Industrial:** Includes customers that are primarily manufacturers or processors of materials. Landscape irrigation water use at these sites is usually separately metered and listed in the landscape sector.
- **Landscape:** Water connections supplying water exclusively for landscape irrigation uses associated with multiple family residential customers (i.e., Homeowner Associations; HOAs) and other irrigation sites.
- **Other Potable - Fire:** Water meters that supply water exclusively for fire suppression or fire system maintenance.

EMID provided data on metered production and consumption by water use sector from 1994 through 2020, number of accounts by sector over the same period, information on water conservation, and additional information for the historical and projected use analyses. As shown in **Table 6**, potable water use within EMID's service area totaled 1,596 MG in 2020, of which 55% was residential use (22% single-family residential and 33% multi-family residential). The remaining water use was split between commercial and institutional (11%), industrial (2%), dedicated irrigation (24%), fire meters (0.1%), and distribution system losses (8%).

Table 6: EMID Actual Total Water Demands for 2016-2020, MG

Year	2016	2017	2018	2019	2020
Gross Water Use	1,322	1,402	1,547	1,473	1,596

Notes:
1. Source: City of Foster City 2020 UWMP, Table 4-2 Demands for Potable and Non-Potable Water – Actual.

In 2020, future water demands for the EMID's service area were projected by BAWSCA on behalf of EMID and other BAWSCA member agencies in the Regional Water Demand and Conservation Projections Report. Future water demands were projected using the Demand Management Decision Support System Model (DSS Model) and were a function of the population and employment projections within EMID's service area. A detailed description of the DSS Model and the associated demand and conservation projection methodology is provided in the 2020 UWMP.

In 2021, as part of the 2020 UWMP update, EMID's DSS Model was revised to account for changes to the population projections since the demand projections were estimated by BAWSCA. The 2021 DSS Model update included revised population projections consistent with the population projections presented in **Table 3**. Passive and active water conservation savings associated with existing water uses in EMID's service area have been subtracted from the water demand projections. "Passive conservation" refers to water savings resulting from actions and activities that do not depend on direct financial assistance or educational programs implemented by water suppliers. "Active conservation" refers to water savings resulting from EMID's implementation of water conservation programs, education programs, and the offering of financial incentives (e.g., rebates). Projected water uses by sector through 2045 are summarized in **Table 7** according to the 2021 DSS Model results.

Table 7: EMID Projected Total Water Demand in Normal Years, MG

Water Use Sector	2025	2030	2035	2040	2045
Single-Family Residential	349	344	346	350	355
Multi-Family Residential	498	483	478	477	478
Commercial	187	205	213	221	230
Industrial	26	29	30	32	33
Landscape Irrigation	421	448	471	496	559
Other	1	1	1	1	1
Non-Revenue Water	134	137	141	145	150
Total Water Demand	**1,615**	**1,646**	**1,681**	**1,723**	**1,805**

Notes:
1. Source: City of Foster City 2020 UWMP, Table 4-4 Use for Potable and Non-Potable - Projected.

Dry Year Demands

EMID's Water Shortage Contingency Plan (WSCP) includes a six-stage plan describing water conservation measures to reduce water demand by more than 50% in the event of a water supply shortage or emergency. The water shortage stages, and their respective anticipated reduction in potable water demand, are shown in **Table 8**.

Table 8: EMID's Water Shortage Continency Plan Projected Demand Reduction

Stage	Percent Supply Reduction
I	Up to 10%
II	Up to 20%
III	Up to 30%
IV	Up to 40%
V	Up to 50%
VI	Greater than 50%

Notes:
1. Source: City of Foster City 2020 UWMP, Table 5-3 Water Shortage Contingency Plan Projected Demand Reduction.

When comparing potable water supply to demand in the City's 2020 UWMP and in this WSA, the dry year water demands are assumed to not include implementation of the EMID's WSCP. This is a conservative assumption as additional water conservation will likely occur as a result of the City's implementation of its WSCP; in response to dry years or other water supply shortages. **Table 9** presents the projected future dry year potable water demand.

Table 9: EMID Projected Total Water Demand in Dry Years, MG

	Potable Water Demand				
Water Use Sector	**2025**	**2030**	**2035**	**2040**	**2045**
Single Dry Year	1,615	1,646	1,681	1,723	1,805
Multiple Dry Year 1	1,615	1,646	1,681	1,723	1,805
Multiple Dry Year 2	1,615	1,646	1,681	1,723	1,805
Multiple Dry Year 3	1,615	1,646	1,681	1,723	1,805
Multiple Dry Year 4	1,615	1,646	1,681	1,723	1,805
Multiple Dry Year 5	1,615	1,646	1,681	1,723	1,805

Notes:
1. Assumes dry year demands will be similar to demands during normal years.
2. Assumes no demand reduction in dry years for conservatism.

A critical component of the new statutory language in CWC § 10635(b) is the requirement to prepare a five-year Drought Risk Assessment (DRA) as part of the 2020 UWMP. The five-year DRA can also be used to provide the water service reliability assessment for a drought lasting five years. As a first step, the Division of Water Resources recommends that the expected gross water use for the next five years without drought conditions (also known as *unconstrained demand*) be estimated. These numbers can then be adjusted to estimate the five-years' cumulative drought effects. The DRA is based on EMID's demand projections from the 2021 DSS Model over the next five years, as shown in **Table 10**.

Table 10: EMID Projected Total Water Demands for 5-year DRA

Year	**2021**	**2022**	**2023**	**2024**	**2025**
Gross Water Use	1,595	1,600	1,607	1,614	1,615

Notes:
1. Source: City of Foster City 2020 UWMP, Table 4-9 Characteristic Five-Year Water Use.

EMID Water Supplies

(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.
(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:
(A) Written contracts or other proof of entitlement to an identified water supply.
(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.
(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

This section presents EMID's surface water supply and water supply reliability including regulatory background information on EMID's source of water supply. The information provided in this section references and/or is excerpted from the 2020 UWMP.

Sources of Water Supply

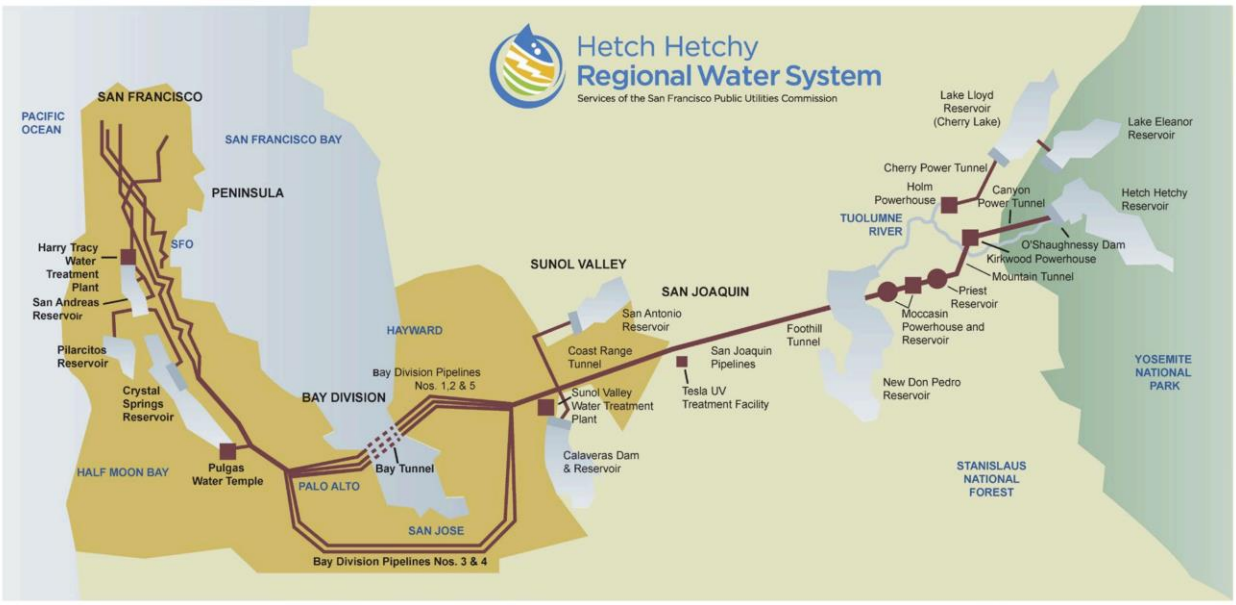
EMID's sole source of potable water is purchased water from the SFPUC. EMID purchases water from the SFPUC in accordance with the 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda, San Mateo, and Santa Clara Counties, approved by the Commission on 28 April 2009 and amended in November 2018. Per the 2009 Water Supply Agreement, San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 million gallons per day (MGD) to the 24 permanent Wholesale Customers, including EMID, collectively.

To maintain consistency with the UWMPs prepared by the SFPUC and the other BAWSCA member agencies, much of the language describing the SFPUC wholesale water supply in the following sections is common language provided by BAWSCA, in coordination with the SFPUC.

Description of SFPUC

Approximately 85% of the water supply to the SFPUC RWS originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project. The remaining 15% of the water supply to the SFPUC RWS originates locally in the Alameda and Peninsula watersheds and is stored in six different reservoirs in Alameda and San Mateo Counties. Details of the various components of the SFPUC RWS are provided below and are shown in **Figure 2**.

Figure 2: Regional Water System (RWS)



Water Distribution

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

- **Hetch Hetchy System:** In the Hetch Hetchy System, water is diverted from Hetch Hetchy Reservoir into a series of tunnels and aqueducts from the Sierra Nevada to the San Joaquin Pipelines that cross the San Joaquin Valley to the Coast Range Tunnel, which connects to the Alameda System at the Alameda East Portal. Hetch Hetchy System water is disinfected at the Tesla Treatment Facility.
- **Alameda System:** The Alameda System includes two reservoirs, San Antonio Reservoir and Calaveras Reservoir, which collect water from the San Antonio Creek, Upper Alameda Creek, and Arroyo Hondo watersheds in Alameda County. San Antonio Reservoir also receives water from the Hetch Hetchy System. Conveyance facilities in the Alameda System connect the Hetch Hetchy System and Alameda water sources to the Peninsula System. The BDPLs cross the South Bay to the Peninsula System delivering water to customers along the pipeline route. The Sunol Valley Water Treatment Plant (SVWTP) filters and disinfects water supplied from San Antonio Reservoir and Calaveras Reservoir.
- **Peninsula System:** The Peninsula System includes conveyance facilities connecting the BDPLs to the in-City distribution system and to other customers on the Peninsula. Two reservoirs, Crystal Springs Reservoir and San Andreas Reservoir, collect runoff from the San Mateo Creek watershed. Crystal Springs Reservoir also receives water from the Hetch Hetchy System. A third reservoir, Pilarcitos Reservoir, collects runoff from the Pilarcitos Creek watershed and directly serves one of the Wholesale Customers, the Coastside County Water District (which includes the City of Half Moon Bay), along with delivering water to Crystal Springs and San Andreas Reservoirs. The Harry Tracy Water Treatment Plant (HTWTP) filters and disinfects water supplied from Crystal Springs Reservoir and San Andreas Reservoir before it is delivered to customers on the Peninsula and the in-City distribution system.

Water Treatment

The Hetch Hetchy Reservoir is the largest unfiltered water supply on the West Coast, and one of only a few large unfiltered municipal water supplies in the nation. The water originates from well-protected wilderness areas in Yosemite National Park, which flows down the Tuolumne River to Hetch Hetchy Reservoir. This water meets or exceeds all federal and State criteria for watershed protection. Water from Hetch Hetchy Reservoir is protected in pipes and tunnels as it is conveyed to the Bay Area, and requires pH adjustment to control pipeline corrosion and disinfection for bacteria control. Based on the SFPUC's disinfection treatment practice, extensive bacteriological

quality monitoring, and high operational standards, the U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board (SWRCB) Division of Drinking Water determined that the Hetch Hetchy water source meets federal and State drinking water quality requirements without the need for filtration.

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

All water derived from sources other than Hetch Hetchy Reservoir is treated at one of two treatment plants: the SVWTP or the HTWTP. The SVWTP primarily treats water from the Alameda System reservoirs and has both a peak capacity and sustainable capacity of 160 MGD. Treatment processes include coagulation, flocculation, sedimentation, filtration, disinfection, fluoridation, corrosion control treatment, and chloramination. Fluoridation, chloramination, and corrosion control treatment can also be provided for the combined Hetch Hetchy System and SVWTP water at the Sunol Valley Chloramination Facility. The HTWTP treats water from the Peninsula System reservoirs and has a peak capacity of 180 MGD and a sustainable capacity of 140 MGD. Treatment processes include ozonation, coagulation, flocculation, filtration, disinfection, fluoridation, corrosion control treatment, and chloramination. Major upgrades to the SVWTP were completed in 2013 and to the HTWTP in 2015.

Water Storage

The majority of the water delivered by the SFPUC is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada. Three major reservoirs collect runoff: Hetch Hetchy Reservoir, Lake Lloyd (a.k.a., Cherry Lake), and Lake Eleanor. A “water bank” in Don Pedro Reservoir is also integrated into system operations.16 Don Pedro Reservoir, which is jointly owned and operated by Modesto Irrigation District and Turlock Irrigation District (the Districts), is located on the Tuolumne River downstream of the Hetch Hetchy System.

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

Downstream of the Hetchy Hetchy System, the SFPUC utilizes local watersheds in the Bay Area. Crystal Springs, San Andreas, and Pilarcitos Reservoirs, located in San Mateo County, capture local runoff in the Peninsula watershed, and Calaveras and San Antonio Reservoirs, located in Alameda Country, capture local runoff in the Alameda watershed. In addition to capturing local runoff, San Andreas, San Antonio, and Crystal Springs Reservoirs also provide storage for water

from the Hetch Hetchy System and, along with Calaveras Reservoir, are an important water supply in the event of an interruption to Hetch Hetchy System deliveries.

Calaveras Reservoir had been operating in recent years at one-third of its capacity due to restrictions imposed by the DWR Division of Safety of Dams. The Calaveras Dam Replacement Project, which took place from 2011 to 2019, involved the construction of a new dam downstream of the existing dam. The SFPUC began impounding water behind the new dam in the winter of 2018/2019 and continued the initial fill of the reservoir during the 2019/2020 winter season.

Individual Supply Guarantees

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

EMID's ISG is 5.9 MGD, or approximately 2,154 MG per year. Between 2016 and 2020, EMID purchased between 61% and 74% of its ISG (see **Table 11**).

2028 SFPUC Decisions (formerly 2018 SFPUC Decisions)

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

In the 2009 Water Supply Agreement, the SFPUC committed to make three decisions before 2018 that affect water supply development:

- Whether or not to make the cities of San Jose and Santa Clara permanent customers,
- Whether or not to supply the additional unmet supply needs of the Wholesale Customers beyond 2018, and
- Whether or not to increase the wholesale customer Supply Assurance above 184 MGD. Events since 2009 made it difficult for the SFPUC to conduct the necessary water supply planning and CEQA analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated Water Supply Agreement, the decisions were deferred for ten years to 2028.

Additionally, there have been recent changes to instream flow requirements and customer demand projections that have affected water supply planning beyond 2018. As a result, the SFPUC has established an Alternative Water Supply Planning (AWSP) program to evaluate several regional and local water supply options. Through this program, the SFPUC will conduct feasibility studies and develop an Alternative Water Supply Plan by July 2023 to support the continued development of water supplies to meet future needs.

SFPUC Water Supply Projects

EMID's wholesaler SFPUC has been implementing its Water System Improvement Plan (WSIP) since it was adopted in 2008. The WSIP includes several water supply projects to address the Level of Service (LOS) Goals and Objective established in the WSIP and updated in February 2020. SFPUC has also developed an AWSP Program to explore other projects that would increase overall water supply resiliency.

EMID Water Supply Projects

The most recent update to EMID's Capital Improvement Plan (CIP) was developed in the Master Plan. None of the projects identified in the CIP will increase the amount of potable supply available to EMID. The San Mateo WWTP is undergoing extensive upgrades that are projected to be completed by 2024. EMID and other agencies are exploring alternatives for using recycled water produced by the WWTP, including serving tertiary treated water to customers in the EMID service area, as well as other parts of the City of San Mateo, and other regional water reuse alternatives. Given that the implementation of the potential recycled water project is uncertain, it is not included in future supply projections.

Regulatory Conditions and Project Development

Emerging regulatory conditions (e.g., issues surrounding the Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary [Bay-Delta Plan Amendment]) may affect planned future projects and the characterization of future water supply availability and analysis. EMID currently does not have any plans to develop new supply sources. If EMID does move forward with any plans to develop supply projects, emerging regulatory conditions will be considered, and the associated water supply reliability impacts will be assessed in future UWMP updates.

Existing and Projected Water Supply

EMID purchases potable water from the SFPUC to meet all of the potable water demands within EMID's service area. In 2020, EMID received approximately 1,596 MG from the SFPUC (**Table 11**).

EMID plans to continue exclusively purchasing wholesale water from the SFPUC to meet its potable demands. Water supplies from the SFPUC RWS through 2045 are projected to be equivalent to EMID's ISG of 2,154 MG, under a normal hydrologic year, which is EMID's contractual entitlement to SFPUC wholesale water and survives in perpetuity. The EMID's total water supply projections are shown in **Table 12** in five-year increments through 2045.

Table 11: EMID Actual Water Supply for 2016-2020, MG

Potable Water Source	2016	2017	2018	2019	2020
SFPUC	1,323	1,402	1,548	1,473	1,596
Total Water Supply	**1,323**	**1,402**	**1,548**	**1,473**	**1,596**

Notes:
1. Source: City of Foster City 2020 UWMP, Table 6-8 Water Supplies – Actual.

Table 12: EMID Projected Total Water Supply in Normal Years, MG

Potable Water Source	2020	2025	2030	2035	2040
SFPUC	2,154	2,154	2,154	2,154	2,154
Total Water Supply	**2,154**	**2,154**	**2,154**	**2,154**	**2,154**

Notes:
1. Source: City of Foster City 2020 UWMP, Table 6-9 Water Supplies – Projected.

Potable Water Supply Reliability

Water Code section 10631 (Urban Water Management Plan requirements)
(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:
(1) An average water year.
(2) A single dry water year.
(3) Multiple dry water years.
For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.
Note: Water Code section 10632 requires that the Urban Water Management Plan include a water shortage contingency analysis.

EMID purchases all of its potable water supply from the SFPUC. The reliability of the SFPUC is anticipated to vary greatly in different year types. EMID has relied on the supply reliability estimates provided by the SFPUC and the drought allocation structure provided by SFPUC and the BAWSCA to estimate available supplies in dry year types through 2045. The information provided in this section references and/or is excerpted from the 2020 UWMP.

Surface Water Reliability Constraints

EMID purchases all its potable water supply from the SFPUC. The following narrative discusses potential issues and constraints on water supply availability.

Bay-Delta Plan Amendment Impacts

In December 2018, the SWRCB adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan

Amendment requires the release of 30-50% of the "unimpaired flow" on the three tributaries from February through June in every year type. In SFPUC modeling of the new flow standard, it is assumed that the required release is 40% of unimpaired flow. Based on information provided by SFPUC and BAWSCA the adoption of the 2018 Bay-Delta Plan Amendment is anticipated to impact the reliability of the RWS supplies in the future.

SFPUC Supply Modeled RWS Dry Year Supply Availability

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

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

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

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

Consistent with SFPUC's approach and guidance from SFPUC and BAWSCA, EMID's UWMP presents results for the water service reliability assessment and the DRA based on the modeling scenario that assumes full implementation of the Bay Delta Plan Amendment in 2023.

Supply Reliability

The following narratives compare EMID's projected water supply availability during normal, single dry, and multiple dry years to assess the reliability of EMID's water supplies.

Average year

EMID is expected to have adequate water supplies during normal years to meet its projected demands through 2045. As discussed previously, in accordance with the SFPUC's perpetual obligation to EMID's Supply Assurance, EMID has an ISG of 5.9 million gallons per day (MGD), or 2,154 million gallons (MG) per year. SFPUC is obligated to provide EMID with up to 100% of EMID's ISG during normal years.

Single dry year

The reliability of the SFPUC supply is anticipated to vary greatly in different year types. EMID has relied on the supply reliability estimates provided by the SFPUC for the RWS and the drought allocation structure provided by SFPUC and BAWSCA to estimate available RWS supplies in dry year types through 2045. In a single dry year EMID anticipates a deficit ranging from 36% to 46% of the total projected demand for all years.

Multiple dry year

Based on the supply reliability estimates and allocation structure provided by SFPUC and BAWSCA, supply totals were projected for a multiple dry year period extending five years. EMID expects a deficit in meeting the projected total water demand of 36% to 54% beginning in the first year of a drought.

Table 13 shows the projected supply totals under a normal, single dry and multiple dry year period extending five years.

Table 13: EMID Projected Total Water Supply under Normal, Single and Multiple Dry Years, MG

Hydrologic Condition	2025	2030	2035	2040	2045
Normal Year	2,154	2,154	2,154	2,154	2,154
Single Dry Year	1,033	1,049	1,067	1,093	984
Multiple Dry Year 1	1,033	1,049	1,067	1,093	984
Multiple Dry Year 2	885	900	915	938	984
Multiple Dry Year 3	885	900	915	938	984
Multiple Dry Year 4	885	900	915	827	836
Multiple Dry Year 5	885	900	838	827	836

Notes:
1. Source: City of Foster City 2020 UWMP, Table 7-3 through 7-5 Supply and Demand Comparison tables.

Five-Year Consecutive Drought Risk Assessment

The available potable water supplies assumed in the DRA are based upon the same methodology and assumptions used for the long-term water service reliability assessment and relies on information provided by SFPUC and BAWSCA. The available RWS water supplies are estimated based on the following assumptions: (1) The RWS demands are held constant at 132.1 MGD (i.e., 2020 demand levels), (2) implementation of the Bay-Delta Plan Amendment occurs in 2023, and (3) the 2020 infrastructure conditions are maintained.

EMID's available potable water supplies during the five-consecutive-year drought are based upon information provided by SFPUC and BAWSCA. Specifically, based on the modeling results presented by SFPUC, BAWSCA provided individual agency drought allocation volumes for 2021 to 2025 in the BAWSCA drought allocation tables, which are reproduced for EMID in **Table 14** below.

Table 14: EMID Projected Total Water Supplies for 5-year DRA

Year	2021	2022	2023	2024	2025
Total Water Supply	1,635	1,646	873	873	873

Notes:
1. Source: City of Foster City 2020 UWMP, Table 7-7 Five-Year Drought Risk Assessment Tables to Address Water Code 10635(b).

Uncertainties in Dry Year Water Supply Projections

The water supply projections presented above likely represent a worst-case scenario in which the Bay-Delta Plan Amendment is implemented without the SFPUC and the SWRCB reaching a Voluntary Agreement and do not account for implementation of SFPUC's AWSP, described in more detail below. Under this supply scenario, SFPUC appears not to be able to meet its contractual obligations and EMID's forecasted demands during droughts.

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

- Implementation of the Bay-Delta Plan Amendment is under negotiation. The SFPUC is continuing negotiations with the SWRCB on implementation of the Bay-Delta Plan Amendment for water supply cutbacks, particularly during droughts. The SFPUC, in partnership with other key stakeholders, has proposed a voluntary substitute agreement to the Bay-Delta Plan Amendment, the TRVA, that provides a collaborative approach to protect the environment and plan for a reliable and high-quality future potable water supply. This is a dynamic situation and the projected drought cutback allocations may need to be revised before the next (i.e., 2025) UWMP depending on the outcome of ongoing negotiations.
- Benefits of the AWSP are not accounted for in current supply projections. SFPUC is exploring options to increase its supplies through the AWSP. Implementation of feasible projects developed under the AWSP is not yet reflected in the supply reliability scenarios presented herein and is anticipated to reduce the projected RWS supply shortfalls.
- Methodology for drought allocations have not been established for wholesale shortages greater than 20%. The drought allocation plans are not designed for RWS supply shortages of greater than 20%. For UWMP planning purposes per BAWSCA guidance, the Wholesale share for a 16% to 20% supply reduction (62.5%) has been applied for reductions greater than 20% and an equal percent reduction has been applied across all Wholesale agencies. BAWSCA member agencies have not formally agreed to adopt this shortage allocation methodology and are in discussions about jointly developing an alternative allocation method that would consider additional equity factors if SFPUC is unable to deliver its contractual supply volume and cutbacks to the RWS supply exceed 20%.
- RWS demands are subject to change. The RWS supply availability is dependent upon the system demands. The supply scenarios are based on the total projected Wholesale Customer purchases provided by BAWSCA to SFPUC in January 2021. Many BAWSCA agencies have refined their projected demands during the UWMP process after these estimates were provided to SFPUC. Furthermore, the RWS demand projections are subject to change in the future based upon future housing needs, increased conservation, and development of additional local supplies.
- Frequency and duration of cutbacks are also uncertain. While the projected shortfalls presented in the UWMP appear severe, the actual frequency and duration of such shortfalls

are uncertain. Based on the HHLSM simulations provided by BAWSCA for the with Bay-Delta Plan Amendment scenario, rationing is anticipated to be required 20% of years for base year 2025 through 2035, 23% of all years for base year 2040, and 25% of years for base year 2045. In addition to the supply volumes, the above listed uncertainties would also impact the projected frequency and duration of shortfalls.

Determination of Water Supply Sufficiency based on Requirements of SB 610

Water Code section 10910(c)
(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water 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.

Water Code section 10911
(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

Summary of Water Demand and Supplies with Proposed Project

Pursuant to Water Code section 10910(c)(4) and based on the technical analyses described in this WSA, the total projected water supplies determined to be available for the Proposed Project during Normal years during a 20-year projection will meet the projected water demand of the Proposed Project. However, projected supplies during Single Dry, and Multiple Dry years during a 20-year projection will not meet the projected water demand associated with the Proposed Project, in addition to existing and planned future uses.

A comparison of EMID's projected potable water supplies and demands are shown in **Table 15**, **Table 16**, **Table 17**, **Table 18** for a consecutive five-year DRA, Normal, Single Dry, and Multiple Dry Years, respectively.

As shown in **Table 16**, demand within the EMID's service area is not expected to exceed the EMID's supplies in any Normal year between 2020 and 2045.

For purposes of this WSA, no demand reductions are assumed during dry years. With this assumption, EMID's water demands are expected to exceed water supplies in Single Dry Years and Multiple Dry Years.

Table 15: EMID Water Demand and Supplies for DRA's Five-Consecutive Years, MG

Description	2021	2022	2023	2024	2025
Total Water Supply	1,635	1,646	873	873	873
Total Water Demand	1,595	1,600	1,607	1,614	1,615
Surplus/(Shortfall)	**40**	**46**	**(734)**	**(741)**	**(742)**

Notes:
1. Total water demand includes the demands of the Proposed Project beginning in year 2022.
2. Source: City of Foster City 2020 UWMP, Table 7-3 through 7-5 Supply and Demand Comparison tables.

Table 16: EMID Water Demand and Supplies for Normal Year, MG

Description	2025	2030	2035	2040	2045
Total Water Supply	2,154	2,154	2,154	2,154	2,154
Total Water Demand	1,615	1,646	1,681	1,723	1,805
Surplus/(Shortfall)	**539**	**508**	**473**	**431**	**349**

Notes:
1. Total water demand includes the demands of the Proposed Project.
2. Source: City of Foster City 2020 UWMP, Table 7-3 Normal Year Supply and Demand Comparison.

Table 17: EMID Water Demand and Supplies for Single Dry Year, MG

Description	2025	2030	2035	2040	2045
Total Water Supply	1,033	1,049	1,067	1,093	984
Total Water Demand	1,615	1,646	1,681	1,723	1,805
Surplus/(Shortfall)	**(582)**	**(597)**	**(614)**	**(630)**	**(821)**

Notes:
1. Total water demand includes the demands of the Proposed Project.
2. Source: City of Foster City 2020 UWMP, Table 7-4 Single Dry Year Supply and Demand Comparison.

Table 18: EMID Water Demand and Supplies for Multiple Dry Years, MG

	Description	2025	2030	2035	2040	2045
First Year	Total Water Supply	1,033	1,049	1,067	1,093	984
	Total Water Demand	1,615	1,646	1,681	1,723	1,805
	Surplus/(Shortfall)	**(582)**	**(597)**	**(614)**	**(630)**	**(821)**
Second Year	Total Water Supply	885	900	915	938	984
	Total Water Demand	1,615	1,646	1,681	1,723	1,805
	Surplus/(Shortfall)	**(730)**	**(746)**	**(766)**	**(785)**	**(821)**
Third Year	Total Water Supply	885	900	915	938	984
	Total Water Demand	1,615	1,646	1,681	1,723	1,805
	Surplus/(Shortfall)	**(730)**	**(746)**	**(766)**	**(785)**	**(821)**
Fourth Year	Total Water Supply	885	900	915	827	836
	Total Water Demand	1,615	1,646	1,681	1,723	1,805
	Surplus/(Shortfall)	**(730)**	**(746)**	**(766)**	**(896)**	**(969)**
Fifth Year	Total Water Supply	885	900	838	827	836
	Total Water Demand	1,615	1,646	1,681	1,723	1,805
	Surplus/(Shortfall)	**(730)**	**(746)**	**(843)**	**(896)**	**(969)**

Notes:
1. Total water demand includes the demands of the Proposed Project.
2. Source: City of Foster City 2020 UWMP, Table 7-5 Multiple Dry Years Supply and Demand Comparison.

Strategies and Actions to Address Dry Year Supply Shortfalls

Water Code section 10911
(a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.
(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.
(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

As stated previously, the Proposed Project is not subject to a WSA. The projected shortfall in water supplies during Single and Multiple dry years for a 20-year projection, as shown in the UWMP is not due to the construction of the Proposed Project. The Proposed Project is estimated to reduce the water demands of the Proposed Project site by 1.6 MG based on historical usage.

EMID does not have plans to acquire additional water supplies as a retail supplier. However, EMID, SFPUC, and BAWSCA have developed strategies and actions to address the projected dry year supply shortfalls. These efforts are discussed in the following sections.

SFPUC and other Regional Actions and Strategies

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

- Calaveras Dam Replacement Project. Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC constructed a new dam of equal height downstream of the existing dam. Construction on the project occurred between 2011 and July 2019. The SFPUC began impounding water behind the new dam in accordance with California Division of Safety of Dams (DSOD) guidance in the winter of 2018/2019.
- Alameda Creek Recapture Project. As a part of the regulatory requirements for future operations of Calaveras Reservoir, the SFPUC must implement bypass and instream flow schedules for Alameda Creek. The Alameda Creek Recapture Project will recapture a portion of the water system yield lost due to the instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)- 24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. Construction of this project will occur from spring 2021 to fall 2022.
- Lower Crystal Springs Dam Improvements. The Lower Crystal Springs Dam (LCSD) Improvements were substantially completed in November 2011. The joint San Mateo County/SFPUC Bridge Replacement Project to replace the bridge across the dam was completed in January 2019. A WSIP follow up project to modify the LCSD Stilling Basin for fish habitat and upgrade the fish water release and other valves started in April 2019. While the main improvements to the dam have been completed, environmental permitting issues for reservoir operation remain significant. While the reservoir elevation was lowered due to DSOD restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir elevation. Raising the reservoir elevation now requires that new plant populations be restored incrementally before the reservoir elevation is raised. The result is that it may be several years before pre-project water storage volumes can be restored.
- Regional Groundwater Storage and Recovery Project. The Groundwater Storage and Recovery (GSR) Project is a strategic partnership between SFPUC and three San Mateo County agencies – Cal Water, the City of Daly City, and the City of San Bruno – to conjunctively operate the south Westside Groundwater Basin. The project sustainably manages groundwater and surface water resources in a way that provides supplies during times of drought. During years of normal or heavy rainfall, the project would provide additional surface water to the partner agencies in San Mateo County in lieu of groundwater pumping. Over time, reduced pumping creates water storage through natural recharge of up to 20 billion gallons of new water supply available during dry years. The project's Final Environmental

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

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

Alternative Water Supply Program

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

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

In early 2020, the SFPUC began implementation of the Alternative Water Supply Planning Program (AWSP), a program designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS. Included in the AWSP is a suite of diverse, non-traditional supply projects that, to a great degree, leverage regional partnerships and are designed to meet the water supply needs of the SFPUC Retail and Wholesale Customers through 2045. As of the most recent Alternative Water Supply Planning Quarterly Update, SFPUC has budgeted $264 million over the next ten years to fund water supply projects. BAWSCA is heavily engaged with the SFPUC on its AWSP efforts.

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

program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the AWSP are as follows:

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

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

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

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

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

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

- Daly City Recycled Water Expansion (Regional, Normal- and Dry-Year Supply). This project can produce up to 3 MGD of tertiary recycled water during the irrigation season (~7 months). On an average annual basis, this is equivalent to 1.25 MGD or 1,400 AFY. The project is envisioned to provide recycled water to 13 cemeteries and other smaller irrigation customers, offsetting existing groundwater pumping from the South Westside Groundwater Basin; this will free up groundwater, enhancing the reliability of the Basin. The project is a regional

partnership between the SFPUC and Daly City. The irrigation customers are located largely within California Water Service's (Cal Water's) service area. RWS customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts. In this way, this project supports the GSR Project, which is under construction.

- ACWD-USD Purified Water Partnership (Regional, Normal- and Dry-Year Supply). This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated wastewater. Purified water produced by advanced water treatment at USD could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin or put to other uses in Alameda County Water District's (ACWD) service area. With the additional water supply to ACWD, an in-lieu exchange with the SFPUC would result in more water left in the RWS. Additional water supply could also be directly transmitted to the SFPUC through a new intertie between ACWD and the SFPUC.
- Crystal Springs Purified Water (Regional, Normal- and Dry-Year Supply). The Crystal Springs Purified Water (PREP) Project is a purified water project that could provide 6-12 MGD of water supply through reservoir water augmentation at Crystal Springs Reservoir, which is a facility of the RWS. Treated wastewater from Silicon Valley Clean Water (SVCW) and/or the City of San Mateo would go through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. The purified water would then be transmitted 10 to 20 miles (depending on the alignment) to Crystal Springs Reservoir, blended with regional surface water supplies and treated again at Harry Tracy Water Treatment Plant. Project partners include the SFPUC, BAWSCA, SVCW, CalWater, Redwood City, Foster City, and the City of San Mateo. Partner agencies are contributing financial and staff resources towards the work effort.
- Los Vaqueros Reservoir Expansion (Regional, Dry Year Supply). The Los Vaqueros Reservoir Expansion (LVE) Project is a storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 AF to 275,000 AF. While the existing reservoir is owned and operated by the Contra Costa Water District (CCWD), the expansion will have regional benefits and will be managed by a Joint Powers Authority (JPA) that will be set up prior to construction. Meanwhile, CCWD is leading the planning, design and environmental review efforts. CCWD's Board certified the EIS/EIR and approved the LVE Project on May 13, 2020. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to the SFPUC. BAWSCA is working in concert with the SFPUC to support their work effort on the LVE project.
- Bay Area Brackish Water Desalination (Regional, Normal- and Dry-Year Supply). The Bay Area Brackish Water Desalination (Regional Desalination) Project is a partnership between CCWD, the SFPUC, Valley Water, and Zone 7 Water Agency. The East Bay Municipal Utilities District (EBMUD) and ACWD may also participate in the project. The project could provide a new drinking water supply to the region by treating brackish water from CCWD's existing Mallard Slough intake in Contra Costa County. While this project has independent utility as a water supply project, for the current planning effort the SFPUC is considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, the SFPUC is considering a water supply benefit of between 5 and 15 MGD during drought conditions when combined with storage at LVE.
- Calaveras Reservoir Expansion (Regional, Dry Year Supply). Calaveras Reservoir would be expanded to create 289,000 AF additional capacity to store excess RWS supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would

involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.

- Groundwater Banking. Groundwater banking in the Modesto Irrigation District (MID) and Turlock Irrigation District (TID) service areas could be used to provide some additional water supply to meet instream releases in dry years reducing water supply impacts to the SFPUC service area. For example, additional surface water could be provided to irrigators in wet years, which would offset the use of groundwater, thereby allowing the groundwater to remain in the basin rather than be consumptively used. The groundwater that remains in the basin can then be used in a subsequent dry year for irrigation, freeing up surface water that would have otherwise been delivered to irrigators to meet instream flow requirements. A feasibility study of this option is included in the proposed Tuolumne River Voluntary Agreement. Progress on this potential water supply option will depend on the negotiations of the Voluntary Agreement.
- Inter-Basin Collaborations. Inter-Basin Collaborations could provide net water supply benefits in dry years by sharing responsibility for in-stream flows in the San Joaquin River and Delta more broadly among several tributary reservoir systems. One mechanism by which this could be accomplished would be to establish a partnership between interests on the Tuolumne River and those on the Stanislaus River, which would allow responsibility for streamflow to be assigned variably based on the annual hydrology. As is the case with Groundwater Banking, feasibility of this option is included in the proposed Tuolumne River Voluntary Agreement.

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

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

BAWSCA's Long Term Reliability Water Supply Strategy

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

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

- Water transfers represent a high priority element of the Strategy.
- Desalination potentially provides substantial yield, but its high effective costs and intensive permitting requirements make it a less attractive drought year supply alternative.

- Other potential regional projects provide tangible, though limited, benefit in reducing dry-year shortfalls given the small average yields in drought years.

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

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

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

EMID Actions and Strategies

EMID has been involved directly and through BAWSCA to advocate for an alternative to the Bay-Delta Plan Amendment, including submitting letters and testimony that identify, among other things, the significant impact to local water supply reliability. In addition, EMID submitted letters to BAWSCA and SFPUC enumerating concerns regarding the fact that the SFPUC supply allocations do not meet the LOS Goals included in the Water Supply Agreement and, therefore, SFPUC is not meeting its contractual obligations to the Wholesale Customers.

EMID is committed to improving its supply reliability, including development of recycled water in the future and continued commitment to its water conservation program.

Management Tools and Options

At a regional level, EMID maintains active involvement in the work that SFPUC and BAWSCA are doing with respect to optimizing the use of regional water supplies and pursuing additional supplies.

In addition to supporting SFPUC and BAWSCA, EMID has been working with the City of San Mateo to develop recycled water supplies. If recycled water is made available, the potable water demands will be less than the current projections and therefore the resultant potable supply shortage will likely to be smaller; however, plans to develop recycled water are still be developed and will not be completed in the near future.

EMID has also been implementing, and plans to continue to implement, demand management measures. Further, in response to the anticipated future dry-year shortfalls, EMID has developed a robust WSCP that systematically identifies ways in which EMID can reduce water demands.

Exchanges and Transfers

There are potential transfer and exchange opportunities within and outside of the SFPUC. EMID does not presently anticipate the need for water right transfers during normal year conditions. However, should that condition change in the future, it is possible that EMID could purchase water from another agency or entity either within or outside of the SFPUC.

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

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

WSA Approval Process

Water Code section 10910
(g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

Water Code section 10911
(b) The city or county shall include the water assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

As indicated above, this WSA must be included in the Draft EIR being prepared for the Proposed Project. The City of Foster City will need to adopt this WSA as part of the CEQA environmental review for the Proposed Project, including the findings described in the previous section.

References

EKI Environment & Water. *Estero Municipal Improvement District 2020 Urban Water Management Plan Adopted*. July 2021.

HydroScience Engineers. Estero Municipal Improvement District – Water Distribution System Master Plan Study. April 2020.

LSA. *388 Vintage Park Drive Project Initial Study Administrative Draft*. June 2021.

Maddaus Water Management Inc. *Water Capacity Investigation for 388 Vintage Park Road*. October 2020.

ATTACHMENT A
City of Foster City
Water Capacity Investigation for 388 Vintage Park Road
Technical Memorandum

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MADDAUS WATER MANAGEMENT INC.

Technical Memorandum – Final

Date: October 15, 2020

To: Nick Moorhead, SteelWave

From: Michelle Maddaus, Maddaus Water Management Inc.

Title: Water Capacity Investigation for 388 Vintage Park Road, Foster City

This technical memorandum details the Water Capacity Investigation (WCI), or preliminary site water use analysis, that has been prepared by Maddaus Water Management Inc. (MWM) for SteelWave for 388 Vintage Park Road, Foster City (Vintage Park) near the Gilead Sciences campus. The Vintage Park site is currently occupied by a vacant restaurant which has been "dark" for two years. SteelWave is exploring the possibility of developing on this site an approximate 3-story, 95,931-square-foot building, over 1 level of parking, that has a lab-to-office ratio of around 50/50.

Initially, this WCI was conducted because the proposed Vintage Park development project was potentially large enough to require a Water Supply Assessment in a subsequent step. Instead, a preliminary analysis was conducted by MWM of site water use and the City of Foster City existing and projected demands. This analysis determined that the city's water supplies were sufficient to serve existing development, including the proposed site and other planned growth as per adopted Water Supply Assessments. The water supplies analyzed included water supplies in normal and multiple dry years as reported in the most recent published Urban Water Management Plan (UWMP). The demand calculations for the site required the determination of net increase over demand associated with former development that was already included in the 2020 water demand projections developed for Estero Municipal Improvement District (EMID).

For this analysis, MWM researched the unit water use (gallons/day/sq. ft.) for the projected site using city records as well as referencing more than 20 years of experience conducting audits of commercial buildings in Foster City. This knowledge was used to verify and validate the water use factors.

Analysis Inputs and Assumptions

MWM considers the following assumptions to be relevant with regard to the final WCI conclusions listed within this memorandum:

- It is assumed the existing site will be demolished.
- It is assumed the existing site had zero water use; however, the EMID water service area demands do include the restaurant demand, so it would be legitimate to account for this and reduce net additional demand. In a more comprehensive water supply assessment, previous site water demands should be considered for the restaurant that closed in 2018.
- It is assumed the site will be developed between 2020 and 2025.
- It is assumed outdoor water use is potable.
- Lab space is assumed to be ~47,965 sq. ft.
- Office space is assumed to be ~47,965 sq. ft.
- It is assumed that a site water use factor was developed using recent water use from nearby Gilead Sciences buildings having a similar function.

Analysis Outputs

The following table presents the estimated site water use for the proposed 388 Vintage Park 95,931-square-foot lab/office development.

388 Vintage Park	Demand (acre-feet per year)	Notes
Demand for Proposed R&D Space (47,965 sq. ft.)	3.7	Based on R&D water use factor of 25 gallons per year per square foot.[1]
Demand for Proposed Office Space (47,965 sq. ft.)	2.0	Based on large office with cooling tower water use factor of 13 gallons per year per square foot.[2]
Demand from Existing Building to Be Demolished	-	The existing building is planning to be demolished. The site's restaurant has been closed since 2018, so no existing water use is assumed.[3]
Net Project Demand	**5.7**	

[1]Based on 2014-2017 water use data from Gilead Sciences 355 Lakeside Drive. Includes landscape irrigation. Assumes demand use factor of 25 gpy/sq. ft.
[2]Based on 2016-2017 water use data from Gilead Sciences 309 Velocity Way. Includes landscape irrigation. Assumes demand use factor of 13 gpy/sq. ft.
[3]El Torito Mexican Restaurant has been closed since 2018, so no existing water use is assumed. It is planned to be demolished.

Conclusions

- This preliminary analysis has estimated the proposed site's water use to be 5.7 acre-feet per year.
- The City of Foster City's current water supplies in normal and multiple dry years are sufficient to serve existing development, including the proposed site, and other planned growth.

ATTACHMENT B
City of Foster City
Projected Water Demands for 388 Vintage Park Road
Spreadsheet

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Project Title:	388 Vintage Park Drive, Foster City WSA
By:	HydroScience, Engineers
Date:	August 4, 2021
Description:	Existing and Projected Water Demand per Year for Proposed Project

Table 2: Existing and Estimated Annual Water Demand for Proposed Project per Water Master Plan

Land Use Designation	Status	Use Type	Size	Units	Water Use Factor (gpd/acre)	MG/Year	AF/Year
R&D + Office Space[1,2]	Proposed	Commercial	2.2	acres	1,656	1.3	4.1
Historic Usage[3]	Existing	Commercial	2.2	acres		(3.4)	(10.4)
Total Demand (increase per year)						(2.1)	(6.3)

[1]Water use factor is based on the Average Day Demand Future Use Factor from Foster City Master Plan (April 2020) Table ES-1 below.

[2]Water use factor is based on commercial use type (for both R&D and Office space) and includes irrigation demands.

[3]Historic usage is based on the average 2012-2017 metered usage for El Torito Restaurant (including landscape).

Source: Foster City Master Plan, April 2020

Table ES-1: EMID Water Use Factors

Use Type	Units	Current Use Factor		Future Use Factor	
		ADD	MDD	ADD	MDD
Single Family	gpd/DU	223	279	226	282
Two Family	gpd/DU	279	326	283	330
Townhouse	gpd/DU	127	132	128	134
Apartment/Condo	gpd/acre	1,919	2,274	1,945	2,306
Commercial	gpd/acre	1,314	1,531	1,656	1,930
Green Area	gpd/acre	1,892	3,372	1,892	3,372
Semi Public	gpd/acre	713	1,099	898	1,385
School	gpd/acre	890	1,014	902	1,028
Industrial	gpd/acre	711	924	896	1,165