

APPENDIX D: WATER SUPPLY ASSESSMENT

A. EXECUTIVE SUMMARY

A Water Capacity Study (WCS) was prepared in February 2023 for the City of Foster City (City) 6th Cycle Housing Element Update, Safety Element Update, and Associated General Plan and Zoning Amendments (named the 2023-2031 Housing Element (HE) in this document) Draft Environmental Impact Report. The WCS informed the development of this Water Supply Assessment (WSA) which will be included in the 2023-2031 Housing Element Final Environmental Impact Report. The 2023-2031 Housing Element identifies and addresses housing needs by including goals, policies, and programs to preserve, improve, and develop housing for all economic segments of the community. This includes identifying housing sites to provide capacity for the Regional Housing Needs Allocation (RHNA) for the 2023-2031 planning period, enough for 1,896 units required within Foster City. Specific sites for additional housing units outlined in the 2023-2031 Housing Element have not all been specified, but will generally be spread around the City, including accessory dwelling units on single-family properties, increased densities at existing apartment sites, and conversion or inclusion of mixed use at existing non-residential sites.

The requirements for a WSA are described in the California Water Code Sections 10910 through 10915, amended by the enactment of Senate Bill 610 (SB 610) in 2002. SB 610 requires an assessment of whether the Estero Municipal Improvement District's (EMID) total projected water supplies available during normal, single-dry and multiple-dry water years, during a 20-year projection, are sufficient to meet the projected water demand associated with the 2023-2031 Housing Element, in addition to existing and planned future uses in the EMID service area (see Wat. Code § 1091(c)(3)).

This WSA builds on previous water demand projections created as part of the Bay Area Water Supply and Conservation Agency (BAWSCA) Regional Water Demand and Conservation Projections Update, which was completed on December 5, 2022, as well as the 2020 Urban Water Management Plan (UWMP) submitted by EMID in June 2021. The new demands from the BAWSCA Regional Water Demand and Conservation Projections Update were approved by EMID and were based on the EMID 2020 UWMP published demands. The EMID 2020 UWMP was adopted by Resolution No. 3596 by the EMID Board of Directors during its July 19, 2021 meeting.

All the development projects included in this WSA are within the service area of EMID, which includes all of Foster City and the Mariners Island portion of San Mateo. It is important to note that, though some developments were completed by the time this WSA was published (i.e., the developments were completed sometime between 2020 and 2023), there was not enough historical water use data to create an accurate, actual site water use estimate. In fact, some of the buildings were not fully occupied, landscaping was not fully established, and a full year of water use data was not available to ascertain water use trends through the various seasons. All future development projects are required to maximize the efficient use of water by installing water saving plumbing fixtures and California native landscaping to reduce water demand.

The process of estimating net water demand for development project sites is dynamic, and by the next WSA submittal there will be more actual site data available under non-dry year

conditions and with the new-normal impacts of the recent/ongoing pandemic. EMID has completed this WSA based on the land uses proposed for the developments presented in Table D-1. These developments include development completed, entitled, under construction, in application review, and/or estimated/planned for after the year 2020. In some cases, a portion of an earlier, larger development effort was completed after 2020 and is included here. Future development project net demands are primarily estimated using available water use data for similar land use developments that have been constructed recently. Net demand takes into account existing site water use including buildings that will be demolished and/or landscapes that will be converted.

In addition, a Water Neutrality Growth Ordinance to be imminently adopted by EMID will require applicable new development, redevelopment, or change in use of any non-single family dwelling within the EMID service area that will require a new water service from EMID or will increase water demand on the project site above the baseline water demand to offset the new water demand with water offset measures to neutralize and/or reduce the impact on overall service area demands as amended in the current BAWSCA Drought Regional Implementation Plan. The Water Neutrality Growth Ordinance has included language pertaining to applicability and exemptions for development projects. Based on the project status information known to the City as of March 2023, certain development projects and their water demands were included in this analysis to validate the available water supplies and demand offset required as denoted in Table D-9.

A detailed description of each development, including its site-specific net demand basis and schedule, is included in Section D of this document. Prior to issuance of future development entitlements, utility analyses shall be performed by the developer to determine whether existing transmission/distribution infrastructure has adequate capacity to deliver the needed water to the development sites.

TABLE D-1 EMID SERVICE AREA POST-2020 DEVELOPMENT SCHEDULE AND NET NEW DEMAND SUMMARY

Development Project Name¹	Net New Demand (Acre Feet per Year (AFY))	Development Completion Schedule
Biomed Phase 2	19	2020-2025
Gilead Integrated Corporate Campus	74	2030-2035
Pilgrim Triton Project Completion	16	2020-2025
15-Acres Project (Foster Square)	3.1	2020-2025
Chess/Hatch Drive Offices Project	15	2025-2030
New Hotel in Metro Center (VISA)	12	2025-2030
388 Vintage Park	5.7	2020-2025
Lantern Cove Apartments Redevelopment	41	2025-2030
Bridgepointe Redevelopment (City of San Mateo)	89	2025-2035
1065 E. Hillsdale (Century Plaza) R&D Conversions	1.7	2020-2025
1065 E. Hillsdale Retail Pavilion (Century Plaza UP-21-0015)	2.6	2020-2025
Schooner Bay I Redevelopment	33	2028
Schooner Bay II Redevelopment	28	2029
Charter Square Demo/Beach Park Elementary School	4.3	2021
1010 Metro Center Blvd (OSH Redevelopment) ²	12	2020-2030
1001 E. Hillsdale (Parkside Towers)	12	2025-2030

Development Project Name ¹	Net New Demand (Acre Feet per Year (AFY))	Development Completion Schedule
901/951 Mariner's Island Blvd Office to Life Science Building Conversion (City of San Mateo)	3.1	2020-2025
1400 Fashion Island Blvd (City of San Mateo)	1.7	2020-2025
999 Baker Way (City of San Mateo)	0.5	2020-2025
Other/Additional Non-Residential Growth	5.2	2030-2040
Accessory Dwelling Units (ADU) for Eaves and Single-Family Homes ²	4.2	2023-2031
2023-2031 Residential Development to Achieve RHNA (Other Sites in the Sites Inventory)	61	2025-2030
Other/Additional Residential Development (Other Sites in the Sites Inventory)	108	2032-2045
Subtotal Developments	553	
Net Demand Reduction Due to Water Neutrality Growth Ordinance ³	428	
Subtotal Developments With Net Demand Reduction Due to Water Neutrality Growth Ordinance	125	
Estimated System Water Loss ⁴	10	
Grand Total Net New Development Demand⁵	134	

¹ These development names represent the portion or phase of the development project completed after 2020 and not any development constructed beforehand under the same development title.

² A total of 56 ADUs are assumed to be constructed from development of the Eaves ADUs (22) in 2024 and single family ADUs (34) between 2020 and 2031. The City has assumed, for the purposes of this WSA, that no ADUs will be constructed after the RHNA planning period ends in 2031. The City has assumed, for the purposes of this WSA, that 50% of ADUs will be greater than 750 square feet and that those ADUs will be expected to comply with the Water Neutrality Growth Ordinance thus resulting in a net new demand of 2.1 AFY.

³ This row represents the estimated net demand for the development projects that will likely be subject to the Water Neutrality Growth Ordinance, thus rendering their estimated demand neutral for this WSA.

⁴ With all future development demand in the service area captured in this table, estimated total system water losses were apportioned to the subtotal development with net demand reduction due to Water Neutrality Growth Ordinance at 7.75% based on the average year 2020 and 2021 EMID American Water Works Association validated water loss audits.

⁵ In some cases, values are rounded to the nearest single digit and totals may not align due to rounding.

This WSA determined that the development listed in Table D-1 will yield an annual net new demand of 134 AFY by year 2045. This value is based on an estimated net development project demand of 553 AFY by year 2045. The Water Neutrality Growth Ordinance requires that applicable developments demand no additional water, thus reducing the net development project demand by 428 AFY and yielding a subtotal net demand of 125 AFY. An additional demand of approximately 10 AFY was added to this subtotal net demand due to an apportioned total system water loss of 7.75%, resulting in a grand total annual net new demand of 134 AFY by year 2045. Individual development net demand values between 2020 and 2045 are summarized in five-year increments in Table D-7.

The water demand associated with the 2023-2031 Housing Element, in addition to the existing and future uses evaluated in this WSA, will be accommodated during non-drought years within a 20-year projection. However, as documented in Table 7-5 in the EMID 2020 UWMP, during single and multiple dry years, the EMID service area's total annual water demand is expected to exceed EMID's available water supplies from 2025 to 2045. The estimated net new demand from the 2023-2031 Housing Element, in addition to the net new demand from the existing and planned future uses evaluated in this WSA, will exacerbate EMID's existing projected supply shortfall during single and multiple dry years. There will not be sufficient supplies under dry year conditions even with EMID's implementation of the mandatory demand reduction as

outlined in the EMID Water Shortage Contingency Plan (WSCP) and with implementation of the Water Neutrality Growth Ordinance. The WSCP and Water Neutrality Growth Ordinance would reduce shortfalls from inadequate water supplies within the EMID service area if the San Francisco Public Utility Commission (SFPUC) reduces water deliveries to EMID (as would occur during a prolonged drought) but would not eliminate all estimated shortfalls in dry year conditions.

Therefore, this WSA concludes that there is not “sufficient water supply” (per Government Code 664737.7 (a)(2)) available to meet the demands of the 2023-2031 Housing Element, in addition to the existing and planned future uses evaluated in this WSA, during single-dry and multiple dry water years within a 20-year projection. EMID shall consider this projected insufficiency and shall take measures, if and when that becomes necessary, to acquire and develop water supplies.

B. INTRODUCTION

This section presents this document’s purpose, a project description, scope of investigation, and persons and documents consulted.

1. Purpose and Authorization

The Foster City 6th Cycle Housing Element Update, Safety Element Update, and Associated General Plan and Zoning Amendments (named the 2023-2031 Housing Element in this document) is considered a “project” under CEQA and is therefore subject to CEQA review. The City of Foster City, as the Lead Agency, has prepared a Program EIR for the proposed project in accordance with CEQA, implementing the CEQA Guidelines, relevant case law, and City procedures.¹

The Safety Element Update portion of the project does not generate additional water demands, leaving the 2023-2031 Housing Element as the focus of this WSA. The 2023-2031 Housing Element is not a development project, but rather a policy document that provides guidance and sets standards for several areas of mandatory environmental review for later “projects” that would be undertaken by local government and the private sector. Foster City has determined that the 2023-2031 Housing Element is a “project” subject to CEQA and is therefore preparing a program-level EIR. A WSA is required for “projects” as defined by Water Code Section 10912 that are subject to CEQA. Water Code Section 10912(7) reasonably applies because it describes future anticipated development: “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.” Future development projects facilitated by the 2023-2031 Housing Element arguably fall within this definition. Additionally, because the 2023-2031 Housing Element is a “project” subject to CEQA per CEQA Guidelines Section 15155, and because Water Code Section 10910 generally requires an evaluation of a 20-year water supply for a project be included in the EIR, a WSA has been prepared.

¹City of Foster City. *Notice of Preparation of a Draft Program Environmental Impact Report (EIR) for the City of Foster City 6th Cycle Housing Element Update, Safety Element Update, and Associated Zoning Amendments*, January 26, 2022

As the public water supplier for the City, EMID has prepared this WSA to evaluate whether EMID's total projected water supplies available during normal, single-dry and multiple-dry water years, during a 20-year projection, are sufficient to meet the projected water demand associated with the 2023-2031 Housing Element, in addition to existing and planned future uses (Water Code §10910(c)(3)).

This WSA does not create a right or entitlement to water service or define any specific level of water service (per Water Code Section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable EMID and City policies and procedures, consistent with existing law.

The WSA has been developed by the collaborative efforts of the project team consisting of Urban Planning Partners, Maddaus Water Management Inc., EMID, Foster City Community Development Department, Public Works Departments, and City of San Mateo Planning Department. Urban Planning Partners was the project manager; Maddaus Water Management provided calculations for the estimated water demand of all developments included in the WSA and assisted in compiling the WSA report; City of Foster City, EMID, and City of San Mateo staff provided information on all other development projects and demands contained within the report.

2. Project Description

The 2023-2031 Housing Element² is one of the eight State-mandated elements of the General Plan and must address the existing and projected housing needs of all economic segments of the community. The purpose of the 2023-2031 Housing Element is to identify the community's housing needs; state the community's goals and objectives with regards to housing production, rehabilitation, and conservation to meet those needs; and define the policies and programs that the community will implement to achieve the stated goals and objectives. California State law requires that the Housing Element be updated every eight (8) years to be responsive to changing conditions, new State law requirements, updated Regional Housing Needs Allocations, and analyses on Affirmatively Furthering Fair Housing (AFFH).

The RHNA process is the part of Housing Element Law used to determine how many new homes, and the affordability of those homes, each local government must plan for in its Housing Element. This process is repeated every 8 years. For the 2023-2031 cycle the California Department of Housing and Community Development (HCD) provided the Association of Bay Area Governments (ABAG) with a Regional Housing Needs Determination (RHND) of 441,176 units. ABAG then developed a RHNA methodology to allocate the RHND across all cities, towns, and counties in the region. This determination of need is primarily based on estimated job growth. ABAG then allocated that need for each jurisdiction, based on their share of the region's households and adjusted for access to high opportunity areas, proximity of jobs to transportation and transit, and an equity adjustment to ensure that each jurisdiction receives an allocation of lower-income units that is at least proportional to its share of the region's total households.

² This WSA is using the Sites Inventory in the Draft Housing Element dated February 16, 2023.

3. Scope of Investigation

Per Water Code Section 10910, this WSA evaluates the projected water demand associated with the 2023-2031 Housing Element, in addition to existing and planned future uses in the EMID service area.

The 2023-2031 Housing Element includes a Sites Inventory that identifies sites that meet the RHNA target of 1,896 housing units in the 2023-2031 time period plus a buffer of 1,184 housing units.³ The Sites Inventory identified several categories of sites including Pipeline Projects (units permitted or under construction but not completed as of June 30, 2022), Proposed Projects (projects that have submitted a development proposal but are not yet approved), Accessory Dwelling Units (ADUs), Other Residential Sites, and Commercial Sites to Allow Residential Mixed Use. This WSA evaluated the demands associated with identified Pipeline, Proposed, ADU, Commercial Sites to Allow Residential Mixed-Use developments, and the remaining housing units (assumed to be on other sites in the Sites Inventory) to meet the City's 2023-2031 RHNA target of 1,896 units.

In this WSA, baseline water use is based on year 2020 consumption. This represents the actual baseline water use reported in the EMID 2020 UWMP. New development water use completed within the EMID service area between 2020 and the time this WSA was prepared in March 2023 is accounted for in the developments presented using actual data. Because actual water use data is available for sites where developments were completed after the year 2020, water use for these sites was included in this WSA to account for the volume of water used in addition to the baseline year 2020 use. This data was not available nor incorporated into the EMID 2020 UWMP year 2020 demands. Existing uses that were evaluated in this WSA include portions of the Gilead Integrated Corporate Campus and Pilgrim Triton Master Plan Project completed after 2020, housing units completed after 2020 for the 15-Acres Project (Foster Square), and the Charter Square Demo/Beach Park Elementary School.

In this WSA, planned future uses refers to developments that were not included in the 2023-2031 Housing Element to meet RHNA requirements. These developments were entitled, under construction, in application review, or estimated/planned in the EMID service area starting in 2020 and are estimated to be completed within the next 20 years. This WSA evaluated planned future developments including office to research and development (R&D) conversions, a hotel, housing in an area of the City of San Mateo served by EMID, other/additional residential development built between 2032-2045, and other non-residential growth (based on expected job growth). By incorporating demand from development that was completed between 2020 and December 2022, in addition to estimated demand from planned future development, a more detailed EMID service area demand has been projected for determining water supply availability for the 2023-2031 Housing Element.

4. Documents and Persons Consulted

Pursuant to Water Code § 10910(c)(3), this WSA was prepared based on information contained within EMID's 2020 UWMP, the 2020 BAWSCA Regional Water Demand and Conservation Projections, the 2022 BAWSCA Regional Water Demand and Conservation Projections Update, supplemented by information on proposed developments from the 2023-2031 Housing Element

³ This WSA is using the Sites Inventory in the Draft Housing Element dated February 16, 2023.

and information prepared by Foster City and City of San Mateo staff from January 2017 to March 2023. The following development project specific environmental documents and water supply assessments were also reviewed:

- 2012 Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report⁴
 - Addendum No. 1 to the certified 2012 Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report
 - Addendum No. 2 to the certified 2012 Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report
 - Addendum No. 3 to the certified 2012 Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report
 - Addendum No. 4 to the certified 2012 Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report
 - Addendum No. 5 to the certified 2012 Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report
- Pilgrim Triton Master Plan Environmental Impact Report⁵
 - CEQA Compliance for the Proposed Amendment to the Pilgrim Triton Master Plan⁶
- 388 Vintage Park Drive Project Environmental Impact Report⁷
- New Hotel in Metro Center General Development Plan Area Environmental Impact Report⁸
- Water Capacity Investigation for 1065 E. Hillsdale Boulevard, Foster City⁹
- 1001 E. Hillsdale Boulevard – Water Demand Analysis¹⁰

C. EMID AND ITS WATER SUPPLY SOURCE

This section presents EMID's water supply source information and volume under normal and dry year conditions.

1. EMID

EMID manages the distribution, operation, and maintenance of the City of Foster City's water supply system. The City's sources of water, water treatment facilities, and water distribution system are described below. EMID also supplies water to residents in part of the City of San Mateo (Mariner's Island area). EMID is governed by a board of five directors, who also serve as

⁴Urban Planning Partners. *Gilead Sciences Integrated Corporate Campus Master Plan Subsequent Environmental Impact Report*, 2013

⁵LSA Associates. *Pilgrim-Triton Master Plan Environmental Impact Report*, March 2008.

⁶Urban Planning Partners. *CEQA Compliance for the Proposed Amendment to the Pilgrim Triton Master Plan*, July 2018.

⁷LSA Associates. *388 Vintage Park Drive Draft Environmental Impact Report*, December 2021.

⁸Urban Planning Partners. *New Hotel in Metro Center General Development Plan Area Environmental Impact Report*, June 2020.

⁹Maddaus Water Management Inc. *Water Capacity Investigation for 1065 E. Hillsdale Boulevard, Foster City*, March 2021.

¹⁰BKF. *1001 E. Hillsdale Boulevard – Water Demand Analysis*, March 2022.

the City Council for Foster City. Foster City's Public Works Department manages and operates EMID

EMID purchases all of its water from the SFPUC as a contractual member of BAWSCA. The SFPUC's water system consists of three regional water supply and conveyance systems: the Hetch Hetchy system, the Alameda system, and the Peninsula system. The Hetch Hetchy system is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada Mountains. The Alameda system includes conveyance facilities connecting the Hetch Hetchy aqueducts and the Alameda water sources to the Peninsula system. The Peninsula system includes water facilities that connect the EMID and other Peninsula customers to the SFPUC distribution system and the Bay Division Pipelines. EMID does not have any groundwater or recycled water sources to supplement its supply. EMID receives the already treated water from SFPUC and distributes it to its customers. As a retailer, EMID has no direct control over its water supply and treatment.

EMID has only one main source of water supply, a 24-inch transmission main that is connected to SFPUC's 54-inch Crystal Springs No. 2 line. The connection point is in the City of San Mateo on Crystal Springs Road. EMID has four at-grade, water storage tanks with a total capacity of 20 million gallons for emergencies, peak, and fire flow demand.

2. Service Area Information and Population Projections

The EMID service area is located midway between San Francisco and San Jose. It is ten miles south of the San Francisco International Airport. The service area of EMID consists of the City of Foster City and the Mariner's Island area of the City of San Mateo. Most customers are residential users with a broad cross-section of offices, commercial businesses, biotech research and development, and a small number of industrial businesses. EMID served an estimated population of approximately 36,500 as reported in the EMID 2020 UWMP and, as a result of this analysis, the service area population is estimated to be 36,700 by 2025.

Today, the City of Foster City is almost built-out with several redevelopment projects in various stages of planning. Table D-2 shows the projected population used for this WSA in 5-year increments until the year 2045. The percent increase for the population growth is also shown. This WSA uses the population estimate published in the EMID 2020 UWMP as the baseline for year 2020 service area population. With all foreseeable future residential development included on this effort's development list, this analysis developed an updated population projection through 2045. Population projections incorporate the City's RHNA, which was not available at the time the EMID 2020 UWMP was developed.

TABLE D-2 EMID CURRENT AND PROJECTED POPULATION

	2020 ¹	2025	2030	2035	2040	2045
Service Area Population ²	36,500	36,700	41,000	42,000	42,700	43,400
% Average Annual Population Increase		0.1%	2.1%	0.5%	0.33%	0.32%

¹2020 actual population is based on the EMID 2020 UWMP (Service Area includes a small portion of San Mateo in addition to all of Foster City).

²Values have been rounded to the nearest hundred.

3. Supply Source and Contractual Provisions

In 1934, San Francisco combined the Hetch Hetchy system and the Spring Valley system to create the SFPUC system. The rights to local diversions were originally held by the Spring Valley Water Company, which was formed in 1862. The SFPUC is owned and operated by the City and County of San Francisco. EMID does not hold any existing water rights and all water supply assurances come through the contract with SFPUC. In 1984, SFPUC executed a Settlement Agreement and Master Water Sales Contract (Contract) with the members of BAWSCA. The Contract is governed by the Master Sales Agreement (MSA), which expired in June 2009. In August of 2009, BAWSCA and its member agencies signed a new Water Supply Agreement and Individual Water Sales Contract with San Francisco. The most recent Contract runs through June 30, 2034 and guarantees a supply assurance of 184 million-gallons-per-day (MGD) to BAWSCA member agencies. EMID's contractual allocation of water (known as its Individual Supply Guarantee) is 5.9 MGD, or approximately 6,610 AFY (2,154 MGY).

In 2020, EMID purchased 4,896 AFY of water from SFPUC.¹¹ Compared to historical use, SFPUC purchases have declined due to a decrease in water demand and the drought.

4. Emergency Connections

In addition to the 24-inch transmission main, EMID has two separate 12-inch emergency supply connections with California Water Service Company (which serves the City of San Mateo) and with Mid-Peninsula Water Agency (formerly called Belmont County Water District, which serves the City of Belmont, San Carlos, and part of Redwood City). EMID has agreements with both agencies that allow EMID to use these connections during emergency situations. Both the California Water Service Company and the Mid-Peninsula Water Agency are members of BAWSCA.

5. EMID Water Supply Projections

The SFPUC has the capacity to meet the demands of its retail and wholesale customers in wet and normal years. The Water Supply Agreement provides for 184 MGD or 206,106 AFY total supply assurance to all BAWSCA member agencies. Going forward, SFPUC's annual normal year supply assurance to EMID is 5.9 MGD or 6,610 AFY as shown in Table D-3.

TABLE D-3 ANNUAL SUPPLY ASSURANCE FROM SFPUC

Water Supply Source	2025	2030	2035	2040	2045
SFPUC, MGD ¹	5.9	5.9	5.9	5.9	5.9
SFPUC, AFY	6,610	6,610	6,610	6,610	6,610

¹EMID 2020 UWMP DWR Table 7-2

Although the Master Agreement and accompanying Water Supply Contract expire in 2034, the supply assurance (which quantifies SFPUC's obligation to supply water to its individual wholesale customers) survives the Contract expiration and continues indefinitely. According to SFPUC's Water System Improvement Program, this amount is subject to further reductions in the event of drought, water shortage, earthquake, rehabilitation, or maintenance of the system.

¹¹Erler & Kalinowski, Inc. 2020 Urban Water Management Plan for Estero Municipal Improvement District, Table 4-5, July 2021.

Table D-4 shows SFPUC's projected deliveries to EMID for a single dry year and for five consecutive dry years, based on the EMID 2020 UWMP allocations.

TABLE D-4 EMID PROJECTED ANNUAL SUPPLY ALLOCATIONS FOR A SINGLE AND MULTIPLE DRY YEARS

Water Supply Source	Status	Normal Year	Single Year	Year 2	Year 3	Year 4	Year 5
			Year 1				
2025 SFPUC, AFY	Max Allocation	6,610	3,170	2,716	2,716	2,716	2,716
	% Reduction	0%	48%	41%	41%	41%	41%
2030 SFPUC, AFY	Max Allocation	6,610	3,219	2,762	2,762	2,762	2,762
	% Reduction	0%	49%	42%	42%	42%	42%
2035 SFPUC, AFY	Max Allocation	6,610	3,275	2,808	2,808	2,808	2,572
	% Reduction	0%	50%	42%	42%	42%	39%
2040 SFPUC, AFY	Supply	6,610	3,354	2,879	2,879	2,538	2,538
	% Reduction	0%	51%	44%	44%	38%	38%
2045 SFPUC, AFY	Max Allocation	6,610	3,020	3,020	3,020	2,566	2,566
	% Reduction	0%	46%	46%	46%	39%	39%

a. Normal year allocation same through projection period per EMID 2020 UWMP DWR Table 7-2.

b. Dry year allocation unique to projection year and dry year type per 2020 UWMP DWR Table 7-3 & 7-4. In general, multiple dry years 2 & 3 supplies are the same, whereas multiple dry years 4 & 5 supplies are the same. More specifically, year 2030 multiple dry years 2-5 supplies are the same.

The following narrative from Section 7.1.3.4 of the EMID 2020 UWMP describing uncertainties in dry year water supply has been included in this WSA to provide context for the projected supply allocations in Table D-4.

Significant water supply shortfalls are currently projected in future single and multiple dry years, directly because of the Bay-Delta Plan Amendment implementation. However, numerous uncertainties remain in the implementation of the Bay-Delta Plan Amendment. The water supply projections presented [in Table 7-5 of the EMID 2020 UWMP] likely represent a worst-case scenario in which the Bay-Delta Plan Amendment is implemented without the SFPUC and the State Water Resources Control Board (SWRCB) reaching a Voluntary Agreement and do not account for implementation of SFPUC's Alternative Water Supply Program (AWSP). Under this supply scenario, SFPUC appears not to be able to meet its contractual obligations (i.e., Level of Service goals) and EMID's forecasted demands during droughts.

SFPUC also provided water supply reliability projections without the Bay-Delta Plan Amendment, which likely represents a highly optimistic water supply reliability outcome. These projections indicated that without the Bay-Delta Plan Amendment SFPUC would be able to supply 100 percent of projected RWS demands in all year types through 2045, except for the 4th and 5th consecutive dry year in 2045, during which 90 percent of projected RWS demands (85 percent of the Wholesale demands) would be met. The large disparity in projected water supply reliability between these two scenarios demonstrates the current level of uncertainty.

In addition to these two UWMP scenarios, in a March 26, 2021 Special Commission Meeting, SFPUC staff presented Hetch Hetchy Local Simulation Model (HHLSM) modeling results for 10 different scenarios, including scenarios with the implementation of the

Tuolumne River Voluntary Agreement (TRVA), with the implementation of the Bay-Delta Plan Amendment and the AWSP, and with the use of a modified rationing policy and a modified design drought. Results for the scenarios with the TRVA and with the AWSP (particularly with a modified rationing policy and design drought) showed significantly improved RWS supply availability compared to the Bay-Delta Plan Amendment scenario shown herein.

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 in the EMID 2020 UWMP and is anticipated to reduce the projected RWS supply shortfalls.
- Methodology for Tier One and Tier Two Wholesale drought allocations have not been established for wholesale shortages greater than 20 percent. The current Tier One and Tier Two Plans are not designed for RWS supply shortages of greater than 20 percent. For UWMP planning purposes per BAWSCA guidance, the Tier One Wholesale share for a 16 percent to 20 percent supply reduction (62.5 percent) has been applied for reductions greater than 20 percent 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 percent.

Negotiations on the Bay-Delta Plan have been ongoing and in November 2022¹² the SFPUC, Turlock Irrigation District, and Modesto Irrigation District signed onto the March 2022 “Memorandum of Understanding Advancing a Term Sheet for the Voluntary Agreements to Update and Implement the Bay-Delta Water Quality Control Plan, and Other Related Actions”.¹³ The signatories of the MOU submitted Voluntary Agreements (VAs) to the State Water Resources

¹² <https://resources.ca.gov/Newsroom/Page-Content/News-List/Four-More-Local-Water-Agencies-Join-Agreement-to-Improve-the-Health-of-Rivers-and-Landscapes>

¹³ Memorandum of Understanding Advancing a Term Sheet for the Voluntary Agreements to Update and Implement the Bay-Delta Water Quality Control Plan, and Other Related Actions, https://resources.ca.gov/-/media/CNRA-Website/Files/NewsRoom/email-items/VoluntaryAgreementMOUtermSheet20220329_SIGNED-20220811.pdf

Control Board (SWRCB) as an alternative for the update of the Bay-Delta Plan proposed as a voluntary pathway to achieve reasonable protection of fish and wildlife beneficial uses. As of January 2023, no voluntary agreement proposals have been approved by the SWRCB. The SWRCB will consider the VA alternative along with other alternatives as part of the public process to update the Bay-Delta Plan. The Tuolumne River portion of the VAs will be evaluated in subsequent analyses.¹⁴

During periods of supply reductions, EMID will have to implement its WSCP to reduce demand. The WSCP describes triggering levels and actions to be considered for each stage of demand reduction. As detailed in Section 6, the plan has six levels with each level set to respond to increasingly more severe conditions. The WSCP is designed to decrease demand to meet the reduced allocations by SFPUC, however, this WSA does not rely on the WSCP as the primary means to enable EMID to sustain sufficient supplies during projected shortfalls.

6. EMID Water Supply Shortage Contingency

The Urban Water Management Planning Act requires all California urban water retailers supplying water to more than 3,000 customers, or supplying more than 3,000 AFY of water, to adopt a WSCP as part of the UWMP. The objective of this legislation is to prompt every water agency to plan for droughts and to prepare a series of responses based upon the severity and length of drought. Per Water Code Section 10632 (a)(3)(A), EMID must include six standard water shortage levels that represent shortages from the normal reliability as determined in the Annual Assessment. The shortage levels have been standardized to provide a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions. The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10, 20, 30, 40, 50, and greater than 50% shortage compared to the normal reliability condition) and align with the response actions EMID would implement to meet the severity of the impending shortages.

Table D-5 shows the EMID's supply availability over five years based on the supply reliability estimates and allocation structure provided by SFPUC and BAWSCA. See the EMID 2020 UWMP for existing customer category breakdowns and water shortage policies for each customer class.

TABLE D-5 REGIONAL WATER SYSTEM (RWS) WHOLESALE SUPPLY AVAILABILITY DURING NORMAL AND DRY YEARS FOR BASE YEARS 2025 THROUGH 2045

Base Year	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
2025	100%	64%	64%	55%	55%	55%	55%
2030	100%	64%	64%	55%	55%	55%	55%
2035	100%	64%	64%	54%	54%	54%	50%
2040	100%	63%	63%	54%	54%	48%	48%
2045	100%	54%	54%	54%	54%	46%	46%

¹⁴ CA SWRCB. Frequently Asked Questions: Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan, https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/FAQ-BD-Plan-Scientific-Basis-Supplement.pdf

Source: EMID 2020 UWMP DWR Table 7-2

a. Normal-year water supply availability is presented in terms of percentage of EMID's annual supply assurance (5.9 MGD).

b. Dry-year water supply availability is presented in terms of percentage of projected RWS demands for each base year consistent with the revised BAWSCA Drought Methodology that assumes equal percent cutbacks across all Wholesale Agencies.

c. Results reflect a scenario with the Bay-Delta Plan Amendment implemented in 2023. As discussed above in Section C.5, though the Tuolumne River Voluntary Agreement has been submitted to the SWRCB, it is not guaranteed water and therefore not considered in this WSA as a reliable source of supply under any water year conditions or shortfall conditions.

D. WATER DEMAND PROJECTIONS

This section presents projected demands for the EMID service area based on analysis of the 2023-2031 Housing Element and existing and planned future uses. Per the City's direction, this WSA assumes the EMID 2020 UWMP baseline water use and all post 2020 development project estimated demand. In some cases, values are rounded to the nearest single digit and totals may not align due to rounding.

1. Future System Demand Projections

Table D-6 shows the future system demand projections without additional development and the difference (excess supply allocation) until 2045. This table presents system demand projections using the year 2020 baseline demand as reported in the EMID 2020 UWMP, adjusted for active and passive savings over time, and assumes no growth in accounts in the EMID service area. Active savings refers to the savings that result from implementing conservation measures. Passive savings refers to water savings resulting from actions and activities that do not depend on direct financial assistance or educational programs implemented by water suppliers. These savings result primarily from the natural replacement of existing plumbing fixtures with water-efficient models required under current plumbing code standards, the installation of water-efficient fixtures and equipment in new buildings and retrofits as required under CALGreen Building Code Standards, and inclusion of low-water use landscaping and high-efficiency irrigation systems to minimize outdoor water use in new connections and developments in accordance with the State's Model Water Efficient Landscape Ordinance (MWELO).¹⁵

As shown, available supplies are sufficient to meet system demand projections in a normal year.

TABLE D-6 FUTURE SYSTEM DEMAND PROJECTIONS (WITHOUT ADDITIONAL DEVELOPMENT)

	2020 ¹	2025	2030	2035	2040	2045
SFPUC Supply, AFY	6,610	6,610	6,610	6,610	6,610	6,610
Demand Projections with Passive and Active Conservation Savings, AFY ²	4,896	4,648	4,371	4,223	4,100	4,113
Annual Excess, AFY	1,715	1,962	2,240	2,388	2,511	2,497
Percent Excess	26%	30%	34%	36%	38%	38%

¹2020 data is based on actual demand numbers found in the EMID 2020 UWMP.

²2025-2045 water demands are estimated using reported passive and active conservation savings volumes per the December 5, 2022 BAWSCA Study.

³In some cases, values are rounded to the nearest single digit and totals may not align due to rounding.

¹⁵Erler & Kalinowski, Inc. 2020 Urban Water Management Plan for Estero Municipal Improvement District, P-35, July 2021.

2. Water Neutrality Growth Ordinance to Offset New Future Water Demands

The EMID Board of Directors directed City staff to prepare a Water Neutrality Growth Ordinance (Ordinance) to implement regulations requiring applicable new development, redevelopment, or change in use of any non-single family dwelling within the EMID service area that will require a new water service from EMID or will increase water demand on the project site above the baseline water demand to offset the new water demand with water offset measures to neutralize and/or reduce the impact on overall service area demands as amended in the current BAWSCA Drought Regional Implementation Plan. Development of the Ordinance will codify a regulatory framework and guidelines will be developed to provide applicants with clear implementation and compliance steps.

The Water Neutrality Growth Ordinance has included language pertaining to applicability and exemptions for development projects. Based on the project status information known to the City as of March 2023, certain development projects and their water demands were included in this analysis to validate the available water supplies and demand offset required as denoted in Table D-9.

3. Development Descriptions and Net Additional Demands

This section presents background and demand calculation information on the 2023-2031 Housing Element housing sites and existing and future planned developments not included in the 2023-2031 Housing Element. All development projects are within the service area of EMID. EMID has completed the WSA based on available water use data from completed developments and the land use proposed for the developments listed below. Per the City's direction, this WSA assumes the EMID 2020 UWMP baseline water use and all post 2020 development project estimated demand. If a development project was built between 2020 and 2022, its actual water use was included when available. EMID has a first-come, first-served policy for serving new development projects, with each new major development requiring a water demand analysis.

A review of 2020-2022 water use was conducted for more than 15 existing office, R&D and residential properties located in the service area and built within the last 10 years. Derived demand factors based on these sites' water use and square footages were used in this analysis when factors by office, R&D and residential type were consistent with each other, respectively. In many cases, due to the COVID-19 pandemic, demand factors for office and R&D buildings were not consistent and deemed too speculative; therefore, older more conservative demand factors were used. Specific demand factor sources are presented by development in this section.

a. Biomed Phase 2

The approved development is on approximately 20 acres of land located in Foster City. All seven, one- and two-story office/warehouse buildings totaling approximately 280,000 square feet were demolished by the current owner and development applicant. The approved development would contain up to 595,000 total square feet of life sciences research facilities in a campus setting, which includes up to 555,000 square feet of laboratory and office uses and a 40,000-square-foot building to house amenities for employees and visitors. Phase 1, completed in early 2018, consisted of 320,000 square feet in two lab/office buildings and 40,000 square feet in one amenities building. Phase 2 consists of 235,000 total square feet of R&D use and

office space in one building and 84,916 square feet of landscaping. The Phase 2 development proposes that 70 percent of the 235,000 square feet be developed for R&D uses and 30 percent be developed for office uses.

EMID staff have determined that existing land use at a comparable development, 355 Lakeside Drive and 309 Velocity Way, is similar to the land use for the new R&D and office space building at this site. Therefore, the historical consumption data for these sites were used as a basis to project water demand for the proposed R&D (laboratory) space and office space. The consumption data shows 25 gallons of water per year (GPY) for each square foot of R&D space and 13 GPY for each square foot of office space is needed. To ensure that maximum water demand was studied, the WSA calculated demand assuming 70 percent of the total square footage would be R&D use and 30 percent would be office use. Based on the calculations, approximately 16 AFY will be required for the Phase 2 R&D and office space.

Landscape area was based on the same proportion of turf (13,824 square feet) and shrubs (71,092 square feet) assumed for Phase 1. Demand was estimated based on local climate factors with an average regional reference evapotranspiration (ET_o) of 47 inches per year. For turf, an irrigation efficiency of 65% and a plant factor of 0.7 or higher was assumed; for shrubs, an irrigation efficiency of 85% and a plant factor of 0.6 was assumed. Based on the calculations, approximately 3 AFY will be required for the proposed landscaping. The total demand for the proposed development including landscaping will be 19 AFY. This development is estimated to be completed by 2025.

b. Gilead Integrated Corporate Campus

In 2013, the city certified the Gilead Sciences Integrated Corporate Campus Master Plan Final Subsequent Environmental Impact Report and adopted Ordinances approving the Amended General Development Plan/Rezoning (GDP) and the First Amendment to the Development Agreement. The GDP includes the development of a biopharmaceutical campus. The Development Agreement includes an allotment of 206 AF of water by EMID.¹⁶

Proposed future development on site involves the removal of 46,943 square feet of recreational turf and the net total development of 361,679 square feet of R&D space, 359,971 square feet of office space, and 23,600 square feet of storage/warehouse space. City staff confirmed that the existing land use at 355 Lakeside Drive and 309 Velocity Way is similar to the land use for the proposed R&D and office space buildings, respectively. Therefore, historical consumption data for these sites was used as a basis to project water demand for the proposed 361,679 square feet of R&D space and 359,971 square feet of office space. The 2014-2017 consumption data shows that 25 gallons of water per year (GPY) for each square foot of R&D space is needed, and the 2016-2017 data yields 13 GPY for each square foot of office space. Based on the calculations, approximately 28 AFY will be required for the R&D buildings and 15 AFY for the office space. The storage/warehouse building is estimated to use 1 AFY. The 46,943 square feet of recreational turf that will be demolished is estimated to have consumed approximately 5

¹⁶ Section 2.17 of the Development Agreement states "...during the Term of this Agreement, EMID will reserve and provide sanitary sewage and water supply capacity, in quantities required for full development of the Project, as described in the EIR." The EIR projected a water demand of 206 AF.

AFY based on local climate factors, an assumed irrigation efficiency of 65%, a plant factor of 0.7 or higher, and an average regional ETo of 47 inches per year.

Per the Development Agreement for the Gilead development, an estimated site water use value of 206 AF is contractually obliged to be served by EMID. Based on an estimated existing water use of 132 AF for the site, 39 AFY for the specified development elements summarized in this WSA, and a 206 AF water allotment per the 2012 Gilead WSA and EMID's obligated service level, the estimated demand for unspecified future development is approximately 35 AFY.

The net projected demand is calculated by subtracting an estimated consumption value for the site's recreational turf area (square footage as of 2022) that will be demolished (and repurposed) from the total projected development demand (including the unspecified development), resulting in approximately 74 AFY of additional water demand. This development is estimated to be completed in various phases by 2035.

c. Pilgrim Triton Project Completion

The originally approved 2008 Pilgrim Triton Master Plan development included 296,000 square feet of commercial/office space, a one-acre park, and 730 units of residential housing to be developed in four phases. In 2017, the applicant submitted revised plans for Pilgrim Triton Phase C that amended the 2015 proposal to include 22 units of workforce housing and 70 for-sale townhouse units on 4.78 acres, replacing the existing entitlement of 225,943 sq. ft. of commercial office and 17 townhouse units on 4.78 acres in the Pilgrim Triton Master Plan development. With a net increase of 75 residential units for Pilgrim Triton Phase C, the total number of residential units for the entire Pilgrim Triton Master Plan development increased from 730 units to 805 units. The total amount of commercial/office space for the entire Pilgrim Triton Master Plan development decreased from 296,000 square feet to 70,057 square feet.

The following development pieces of the Pilgrim Triton Project Completion were evaluated in this WSA:

- Development of 70 townhouse-style condominium units known as Laguna Vista. Townhouse units will consist of two, three, and four-bedroom plans, and range in size from approximately 1,220 square feet to 2,050 square feet. The estimated demand for the proposed 70 townhouses is 6.4 AFY. Indoor water use was calculated by multiplying an estimated 1.7 people per household, based on average multifamily housing occupancy rates, with the average indoor water use of 48 GPCD, which is consistent with the EMID service area multifamily use.
- Development of 22 workforce housing apartment units that are owned by the City. Workforce housing units will be one and two-bedroom units and range in size from approximately 760 square feet to 1,110 square feet. The workforce housing units will require a total demand of 2 AFY. The estimated water use was calculated using the methodology described previously for townhouses with typical water use of 48 GPCD for indoor use and 1.7 people per household.
- 34,531 square feet of landscaping for the townhouse and workforce housing units. 29,336 square feet of landscaping will be associated with the townhomes and 5,195 square feet will be associated with the workforce housing. 95% of the landscaping will be shrubs and 5% will

be turf. Demand was estimated based on local climate factors with an average regional ETo of 47 inches per year; for turf an irrigation efficiency of 65% and a plant factor of 0.7 or higher was assumed; for shrubs, an irrigation efficiency of 85% and a plant factor of 0.6 was assumed. The townhouse and workforce housing landscaping will require 1.2 AFY.

- Development of a new 24,103 square foot portion of the existing 1.2 acre Pilgrim Triton Plaza Park. Of this new area, only 11% is turf. Turf water is estimated based on local climate factors, assuming an irrigation efficiency of 65%, a plant factor of 0.7 or higher, and an average regional ETo of 47 inches per year for a total demand of approximately 0.26 AFY.
- A 9,400 square foot expansion of the Family Dental building. The expansion will require approximately 2.9 AFY assuming a 27 GPD/100 square feet demand factor based on the 2016 Castaic Lake Water Agency (CLWA) Commercial Demand Factor Study which reported medical/dental/veterinary use per square footage factors for CA water agencies.
- Development of 20 townhouse units known as Waverly Cove were completed in 2020. Demand for these units was calculated using actual annual site demand based on recent July 2021- June 2022 water use data for a total demand of 3.1 AFY.
- Occupancy of the 3,970 square feet of retail space on the ground floor of the Triton Apartments that has been vacant since the building was completed will require approximately 0.37 AFY assuming a conservative 8 GPD/100 square feet demand factor based on the 2016 CLWA Commercial Demand Factor Study which reported retail space use per square footage factors for CA water agencies.

Development of the portions of the Pilgrim Triton Project Completion described above will result in approximately 16 AFY net development water demand. This development will be completed in various phases by 2025.

d. 15-Acres Project (Foster Square):

The approved development is on approximately 15 acres located adjacent to the Foster City Civic Center and the Peninsula Jewish Community Center. The entire Foster Square development consists of the following: 200 market rate senior units, 131 assisted living units, 24 memory care beds, 66 affordable housing units, and 30,000 square feet of retail. The assisted living, memory care and affordable housing components were completed in late 2016. Of the market rate senior units, 152 were completed between 2017 and 2020, and 48 units were completed after 2020.

For the analysis of the 48 units that were built after 2020, a demand factor of 58 GPD/unit was developed based on actual water use data from the completed residences. The 48 units are expected to require approximately 3.1 AFY of additional water demand.

e. Chess/Hatch Drive Offices Project:

Implementation of the proposed Master Plan will result in the demolition of 11 existing commercial/industrial buildings, totaling 190,000 square feet, and phased construction of three new multi-story office buildings, totaling 800,000 square feet. Net new development on the site would total 610,000 square feet of office use.

Based on historical 2016-2017 consumption data from Gilead Sciences at 309 Velocity Way that includes landscape irrigation and a cooling tower, a water use factor of 13 GPY/square foot was applied to the proposed 800,000 square feet of office space, yielding a demand of 33 AFY for the proposed development. Consumption data for the existing buildings at 1155-1191 Chess Drive, which will be demolished, was approximately 18 AFY. Therefore, the net demand resulting from the proposed development is calculated by subtracting the site's baseline consumption (based on normal water years 2007 and 2008), from the total projected demand, resulting in approximately 15 AFY of additional water demand. This development is estimated to be completed between 2026 and 2030.

f. New Hotel in Metro Center:

The proposed development involves the development of an approximately 83,000 square-foot, six-story hotel on an approximately 1.36-acre vacant lot at the corner of Metro Center Boulevard and Shell Boulevard. There is no building to be demolished, but there is existing irrigation at the site. The most recent proposal for the hotel includes 154 guest rooms, a restaurant, meeting space, and a rooftop bar, in addition to several features generally associated with short-stay hotels, including a fitness center, lobby lounge, and a guest laundry room. The proposed development would provide approximately 140 parking spaces, new drive aisles, landscaping, and covered outdoor seating areas.

Water use estimates are derived from number of guests, staff, occupancy, site area, etc. Values are consistent with industry standards and represent 100 GPD/room. Projected water demand for this development is approximately 18 AFY. Two years of consumption data from August 2017 to July 2019, solely for the purpose of irrigation, was used to determine the baseline site water demand of approximately 5.9 AFY. The net demand is calculated by subtracting the existing consumption from the total projected development demand, resulting in approximately 12 AFY of additional water demand. This development is estimated to be completed between 2027 and 2030.

g. 388 Vintage Park:

The proposed development involves redevelopment of the vacant El Torito restaurant into a new office building with approximately 50% office and 50% R&D space. The proposed plans for the site include demolition of the vacant restaurant, development of 95,931 square feet of a new Class A life sciences office, 198 vehicular parking spaces, 16 motorcycle and 20 bicycle parking spaces, and an outdoor roof terrace at the 4th level for employee amenity use.

Historical 2016-2017 consumption data from Gilead Sciences at 309 Velocity Way was used to calculate the projected demand for the office portion of the development. Based on a large office space with a cooling tower and landscape irrigation, a water use factor of 13 GPY/square foot was applied to the proposed 47,965 square feet of office space. This factor yields a demand of 2 AFY for the office portion of the proposed development. Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr was used to calculate the projected demand for the R&D portion of the development. A water use factor of 25 GPY/square foot was applied to the proposed 47,965 square feet of R&D space. This factor yields a demand of 3.7 AFY for the R&D portion of the proposed development. The restaurant onsite has been closed since 2018 so there was no recent water use data to evaluate, and thus no demand was

assumed. The total water demand required for this site is approximately 5.7 AFY. This development is estimated to be completed by 2025.

h. Lantern Cove Apartments Redevelopment:

The proposed development involves removing 64 existing dwelling units and adding 420 new dwelling units, resulting in a net total of 356 new dwelling units on a 16.8-acre site known as Lantern Cove Apartments. The subject site is located to the south of Port Royal Avenue between the two points of intersections of Port Royal Avenue and Rock Harbor Lane. The site currently includes thirty-five 2-story apartment buildings containing 232 dwelling units, a leasing/amenity building, and 482 parking spaces.

This analysis assumed an indoor water use factor of 48 gallons per capita per day (GPCD) and a household size of 2 people per unit to calculate total water demand for the 356 new units. These values are based on the 2021 average multifamily per capita indoor water use presented in the 2021 Estero DSS Model (Maddaus Water Management's Demand Side Management Least Cost Planning Decision Support System [DSS Model]) and the average household size of a renter-occupied unit from 2016 American Community Survey data for the Foster City area. Net demand for this development is approximately 41 AFY. This development is estimated to be completed in 2026.

i. Bridgepointe Redevelopment (City of San Mateo):

Bridgepointe is an underutilized commercial shopping center located within the City of San Mateo. There are six parcels ranging in size from 1.3 acres to 12 acres with significant amounts of surface parking. There have been a variety of discussions with the owners of the shopping center who have expressed interest in mixed-use redevelopment that includes both housing and commercial. By assuming mixed-use development on these parcels, the City of San Mateo is calculating the realistic capacity at 40 units per acre for a total of 1,188 units. Bridgepointe is located within the City of San Mateo and was included in this WSA because it is served water by EMID.

This analysis assumed no net irrigation increase, an indoor water use factor of 48 GPCD, and a household size of 1.4 people per unit to calculate water demand for the 1,188 new multifamily units. These values are based on the 2021 average multifamily per capita indoor water use presented in the 2021 Estero DSS Model and occupancy data from neighboring Schooner Bay and Lantern Cove one-bedroom units. Net demand for this development is approximately 89.5 AFY. Approximately 75% of the total housing units will be completed by 2030, and the remaining units are estimated to be completed by 2035.

j. 1065 E. Hillsdale (Century Plaza) R&D Conversions:

The site is currently occupied by a 4-story, 115,629 square foot building (Century Plaza Office Building). The applicant proposes to convert up to 75 percent of the existing building to R&D use (approximately 87,000 square feet).

Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr was used to calculate the projected demand for the R&D portion of the development. A water use factor of 25 GPY/square foot was applied to the proposed 87,000 square feet of R&D space. This factor includes landscape irrigation and yields a demand of 6.8 AFY for the R&D space. A demand

factor of 19.1 GPD/square foot was applied to the proposed 29,000 square feet of office space. The demand factor was based on the site's actual building and outside irrigation meter usage from February 2019-March 2020 (pre-COVID). This factor yields a demand of 1.7 AFY for the proposed office space. The existing building that will be redeveloped uses approximately 6.8 AFY based on 2019 pre-COVID water use for the site. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 1.7 AFY of additional water demand. This development is estimated to be completed by 2025.

k. 1065 E. Hillsdale Retail Pavilion (Century Plaza UP-21-0015):

The proposed development involves development of a new, approximately 5,200 square-foot, stand-alone outdoor pavilion structure featuring restaurant and retail tenant spaces as an ancillary amenity to the existing Century Plaza office use located at 1065 E. Hillsdale Boulevard, situated at the southwest corner of Foster City Boulevard and E. Hillsdale Boulevard.

Demand for the proposed 2,600 square feet of retail space was calculated at 0.24 AFY using a conservative 8 GPD/100 square feet demand factor based on the 2016 CLWA Commercial Demand Factor Study that reported retail space use per square footage factors for CA water agencies. Demand for the proposed 2,600 square feet of restaurant space was calculated at 2.3 AFY using a conservative 80 GPD/100 square feet demand factor based on the 2016 CLWA Commercial Demand Factor Study that reported fast-food space use per square footage factors for CA water agencies. Net demand for this development is 2.6 AFY. This development is estimated to be completed in 2023.

l. Schooner Bay I Redevelopment:

Schooner Bay is located in the southeast corner of Foster City at the end of Edgewater Boulevard. The 24.8 acre property includes 312 existing apartment units. The proposal is divided into two parts: Schooner Bay I and Schooner Bay II.

The proposed Schooner Bay I development involves the removal of 56 existing units and development of 113 studios, 220 one-bedroom, and 75 two-bedroom units for a total of 408 new units in one building.

Demand for the 408 new residential units was calculated using an assumed 55 GPCD and 1.4 people per household per studio and one-bedroom units, and 2.2 people per household per two-bedroom unit. These values were based on per capita water use at the nearby Triton Apartments, and existing Schooner Bay occupancy data. The total demand for the new residential units is 39 AFY.

Demand for the existing 56 units that will be demolished was calculated using an assumed 48 GPCD and 1.9 people per unit. These values were based on existing Schooner Bay occupancy data and average multifamily per capita indoor water use presented in the 2021 Estero DSS Model. The total demand from the demolished units is 5.7 AFY. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 33 AFY of additional water demand. This development is estimated to be completed in 2028.

m. Schooner Bay II Redevelopment:

The proposed Schooner Bay II development involves the removal of 56 existing units in seven buildings and development of 94 studios, 159 one-bedroom units, and 97 two-bedroom units for a total of 350 new units.

Demand for the 350 new residential units was calculated using an assumed 55 GPCD and 1.4 people per household per studio and one-bedroom units, and 2.2 people per household per two-bedroom unit. These values were based on per capita water use at the nearby Triton Apartments, and existing Schooner Bay occupancy data. The total demand for the new residential units is 34 AFY.

Demand for the existing 56 units that will be demolished was calculated using an assumed 48 GPCD and 1.9 people per unit. These values were based on existing Schooner Bay occupancy data and average multifamily per capita indoor water use presented in the 2021 Estero DSS Model. The total demand from the demolished units is 5.7 AFY. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 28 AFY of additional water demand. This development will be completed in 2029.

n. Charter Square Demo/Beach Park Elementary School:

This development, completed in 2021, involved the demolition of 58,479 square feet of retail space at 1058 Shell Blvd in 2019 and development of Beach Park Elementary School. Beach Park Elementary School currently serves grades K-5.

Demand for the elementary school is 4.5 AFY based on actual site water use data from August 2020-July 2021. Demand from the 58,479 square feet of retail space that was demolished was approximately 0.1 AFY based on the site's average annual water use from 2012-2017.

Therefore, the net demand resulting from the development is calculated by subtracting the consumption from the demolished building from the total demand, resulting in approximately 4.3 AFY of additional water demand.

o. 1010 Metro Center Blvd. (OSH Redevelopment):

The proposed development involves re-occupancy of the vacant 58,300 square foot retail building at the site at 1010 Metro Center Boulevard in 2023 and potential redevelopment with mixed use and other residential housing by 2030. This analysis estimates 111 residential units will be developed, as indicated on the Sites Inventory in the January 31, 2023 Draft Housing Element. The Housing Element explains that the 111 units is "discounted" pursuant to HCD Guidelines to account for the potential that the owner will choose to develop the site with only commercial use rather than a mixed commercial/residential use. The site is 6.345 acres with frontage on both Metro Center Boulevard and Foster City Boulevard.

It was assumed that demand from re-occupancy of the 58,300 square foot retail space aligns with historical average annual use from 2014-2018 yielding a total demand of 1.3 AFY. The demand for the potential 111 residential units was calculated assuming 1.79 people per unit based on recent multifamily occupancy values for over 7 local developments and 48 GPCD for a total demand of 10.7 AFY. No net additional outdoor water use was assumed. Therefore, the total water demand for this development is approximately 12 AFY. The retail portion of this

development is expected to be completed by 2025 and yield a total net demand of 1.3 AFY; and the residential portion will be completed by 2030.

p. 1001 E. Hillsdale (Parkside Towers):

This development involves the conversion of 317,599 square feet of office space to R&D use. Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr was used to calculate the projected demand. A water use factor of 25 GPY/square foot was applied to the proposed 317,599 square feet of R&D space. This factor includes landscape irrigation and yields a demand of 25 AFY for the R&D space. Historical 2016-2017 water use data from Gilead Sciences at 309 Velocity Way was used to calculate demand from the existing 317,599 square feet of office space that will be demolished. A water use factor of 13 GPY/square foot was applied to the 317,599 square feet of office space to be demolished yielding a demand of 13 AFY. This factor includes landscape irrigation and is based on a large office space with a cooling tower. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 12 AFY of additional water demand. This development is estimated to be completed between 2025 and 2030.

q. 901/951 Mariner's Island Blvd Office (City of San Mateo):

This development involves conversion of two seven-story office buildings from an office use to R&D use.

Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr was used to calculate the projected demand. A water use factor of 25 GPY/square foot was applied to the proposed 248,897 square feet of R&D space. This factor includes landscape irrigation and yields a demand of 19 AFY for the proposed R&D space. The existing 245,972 square feet of office space that will be redeveloped at 901 and 951 Mariner's Island Blvd used 16 AFY based on actual site average annual water use from 2012-2022. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 3 AFY of additional water demand. This development is estimated to be completed by 2025.

r. 1400 Fashion Island Blvd (City of San Mateo):

This development involves conversion of a 175,459 square foot, 10-story office building from an office use to R&D use. No change in floor area or demolition is anticipated.

Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr was used to calculate the projected demand. A water use factor of 25 GPY/square foot was applied to the proposed 175,459 square feet of R&D space. This factor includes landscape irrigation and yields a demand of 13.5 AFY for the proposed R&D space. The existing 175,459 square feet of office space that will be redeveloped used 11.8 AFY based on actual site average annual water use from 2019. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 1.7 AFY of additional water demand. This development is estimated to be completed by 2025.

s. 999 Baker Way (City of San Mateo):

This development involves conversion of 36,062 square feet of office space to R&D use.

Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr and water use data from the existing office site was used to calculate the projected demand. A water use factor of 25 GPY/square foot was applied to the proposed 36,062 square feet of R&D space. This factor includes landscape irrigation and yields a demand of 2.8 AFY for the proposed R&D space. The existing 36,062 square feet of office space that will be redeveloped was assumed to use 2.3 AFY based on actual site average annual water use from 2019 that was proportioned to the area of renovation. Therefore, the net demand resulting from the proposed development is calculated by subtracting the existing consumption from the total demand, resulting in approximately 0.5 AFY of additional water demand. This development is estimated to be completed by 2025.

t. Other/Additional Non-Residential Growth:

This WSA calculates demand for 200 remaining net additional jobs (to be online between 2030 and 2040) that were estimated in consideration of ABAG's job projections and based on the anticipated conversion of office uses to R&D which may result in job losses. The estimated 200 other jobs accounted for in this WSA accounts for the scarcity of land area and potential redevelopment of space for job growth. This additional job growth between 2030 and 2040 is assumed to be 3% retail, 35% office and 62% R&D based on recent development trends.

Demand for this additional job growth is calculated assuming 405 square feet/employee based on an average of Foster City's projected development commercial ratios. Historical 2014-2017 consumption data from Gilead Sciences at 355 Lakeside Dr is used to calculate demand for R&D water use based on a factor of 25 GPY/square foot. Historical 2016-2017 consumption data from Gilead Sciences at 309 Velocity Way is used to calculate demand for office water use based on a factor of 13 GPY/square foot. A conservative factor of 8 GPD/100 square feet based on the 2016 CLWA Commercial Demand Factor Study which reported retail space use per square footage factors for CA water agencies is used to calculate the demand for retail water use. It is assumed that any outdoor use will be net zero or reduced because of projected conservation requirements. The additional job growth between 2030 and 2040 will require approximately 5.2 AFY of additional water demand.

u. Accessory Dwelling Units (ADU) for Eaves and Single-Family Homes:

The Eaves is located at the southeast corner of Foster City Boulevard and Marlin Avenue. The Eaves Apartments includes 288 units on 11 acres. State law and Chapter 17.78 of the Foster City Municipal Code allow multi-family ADUs up to 25% of the existing number of dwelling units. For The Eaves, this would allow a maximum of 72 ADUs. Preliminary plans were submitted for 22 multi-family ADUs at The Eaves Apartments. The ADUs would be created from existing tuck-under parking spaces, an existing second floor lounge, and include two of the ADUs in a freestanding structure(s). The ADUs would be studio apartments of about 500 square feet each.

The City has had a few ADUs and Junior ADUs (JADUs) permitted and constructed at single family houses (not multi-family ADUs) in recent years. The City has issued an average of 2.66

building permits per year for ADUs over the last three years (2020-2022), with the biggest growth in the last two years. The significant growth in ADUs indicates that the City can reasonably expect increased ADU production at the 2021 rate of three per year. At a rate of approximately 3 ADUs/year, with 4 in year 2023 as they are currently under construction, a total of 28 SF ADUs are estimated to be constructed in Foster City during the 2023-2031 RHNA planning period. The City has assumed, for the purposes of this WSA, that no ADUs will be constructed after the RHNA planning period ends in 2031. This number is conservative given additional changes in State law, the City's efforts to further facilitate ADU construction, actual ADU production over the last two years, and new programs to promote the production of ADUs.

A total of 56 ADUs are assumed to be constructed between 2020 and 2045 from development of the Eaves ADUs (22) in 2024 and single family ADUs (34) between 2020 and 2031. Demand for these ADUs will be 4.5 AFY. This was calculated assuming a 48 indoor GPCD and 1.5 people per household based on the approximate average of the 1-bedroom units in Lantern Cove and Schooner Bay. Demand from the existing landscape assumed to be removed for each single family ADU development will be 0.3 AFY. This was calculated assuming landscape is 10% of the demand for a single family ADU. Therefore, net demand for 56 ADUs will be approximately 4.2 AFY. The City has assumed, for the purposes of this WSA, that 50% of ADUs will be greater than 750 square feet and that those ADUs will be expected to comply with the Water Neutrality Growth Ordinance thus resulting in a net new demand of 2.1 AFY.

v. 2023-2031 Residential Development to Achieve RHNA (Other Sites in the Sites Inventory):

This WSA analysis assumes 663 additional units on sites in the Sites Inventory that were not included in planned future developments will be needed to meet the City's RHNA requirement of 1,896 by 2031. EMID elected to also account for the estimated demand from 16-units considered on the 1601 Beach Park Blvd site within this "2023-2031 Residential Development to Achieve RHNA (Other Sites in the Sites Inventory)" development project demand. Demand for the 663 units (including the 16 units at the 1601 Beach Park Blvd site) was calculated using an indoor water use factor of 48 GPCD (consistent with EMID service area multifamily indoor water use) and 1.7 people per household (consistent with local multifamily occupancy rates). Any outdoor use was assumed to be net zero or reduced because new units will be replacing existing buildings or landscaping. It was also assumed that there would be no demolition of existing buildings to accommodate the RHNA units.

Therefore, net demand from the 663 units (including the 16 units at the 1601 Beach Park Blvd site) is approximately 61 AFY. Other/Additional Residential Development (Other Sites in the Sites Inventory)

The City's 2023-2031 Housing Element Sites Inventory identifies sites to meet construction objectives/RHNA targets. The City estimates 3,080 total housing units are needed, including a buffer for excess capacity so that the Sites Inventory can demonstrate sufficient capacity. Since the RHNA requirement is expected to be met by 2031 with the planned development of 1,896 units, the remaining anticipated 1,184 "buffer units" outlined in the Site Inventory were evaluated in this WSA as additional housing growth between 2032 and 2045. More specifically, this analysis assumed 30% of these units would come online between 2032 and 2035; 35% would come online between 2035 and 2040; and the remaining 35% units would be built and occupied between 2040 and 2045.

Demand for the 1,184 additional residential development units was calculated assuming a 48 indoor GPCD (consistent with EMID current average multifamily indoor use) and 1.7 people per unit (based on local average multifamily housing occupancy rates). Any outdoor use was assumed to be net zero or reduced because new units will be replacing existing buildings or landscaping. It was also assumed that there would be no demolition of existing buildings to accommodate the additional residential development. The additional residential development will require approximately 108 AFY of additional water demand.

E. SUPPLY VS. DEMAND COMPARISON

1. Comparison of Supply and Demand

Table D-7 shows the total projected annual net new demand generated from the development projects evaluated in this WSA. Net new demand (as opposed to new development demand) takes into account existing site water use including buildings that will be demolished or landscapes that will be converted. The annual net demand is then reduced due to implementation of the Water Neutrality Growth Ordinance and estimated total system water loss is apportioned to the resulting net demand volume from the new development.

Total system water loss is the sum of apparent and real losses. Apparent loss is associated with metering inaccuracies, billing and administrative errors, authorized unmetered uses (e.g., system flushing and firefighting), and unauthorized uses. Real loss is associated with physical water lost through line breaks, leaks and seeps, and overflows of storage tanks. This WSA applies an additional total system water loss demand of 7.75% based on the average year 2020 and 2021 EMID American Water Works Association (AWWA) validated water loss audits. The EMID 2021 AWWA validated water loss audit reported a total system water loss percentage of 7.2% and a total system water loss percentage of 8.3% in 2020. The 2022 BAWSCA Demand Study estimated an 8.3% total system water loss percentage.

TABLE D-7 PROJECTED ANNUAL NET NEW DEMANDS FROM DEVELOPMENT PROJECTS (AFY)

Development Project	2025	2030	2035	2040	2045
Biomed Phase 2	19	19	19	19	19
Gilead Integrated Corporate Campus	0	10	74	74	74
Pilgrim Triton Project Completion	16	16	16	16	16
15-Acres Project (Foster Square)	3.1	3.1	3.1	3.1	3.1
Chess/Hatch Drive Offices Project	0	15	15	15	15
New Hotel in Metro Center (VISA)	0	12	12	12	12
388 Vintage Park	5.7	5.7	5.7	5.7	5.7
Lantern Cove Apartments Redevelopment	0	41	41	41	41
Bridgpointe Redevelopment (City of San Mateo)	0	67	89	89	89
1065 E. Hillside (Century Plaza) R&D Conversions	1.7	1.7	1.7	1.7	1.7
1065 E. Hillside Retail Pavilion (Century Plaza UP-21-0015)	2.6	2.6	2.6	2.6	2.6
Schooner Bay I Redevelopment	0	33	33	33	33
Schooner Bay II Redevelopment	0	28	28	28	28

Development Project	2025	2030	2035	2040	2045
Charter Square Demo/Beach Park Elementary School	4.3	4.3	4.3	4.3	4.3
1010 Metro Center Blvd (OSH Redevelopment)	1.3	12	12	12	12
1001 E. Hillsdale (Parkside Towers)	0	12	12	12	12
901/951 Mariner's Island Blvd Office to Life Science Building Conversion (City of San Mateo)	3.1	3.1	3.1	3.1	3.1
1400 Fashion Island Blvd (City of San Mateo)	1.7	1.7	1.7	1.7	1.7
999 Baker Way (City of San Mateo)	0.5	0.5	0.5	0.5	0.5
Other/Additional Non-Residential Growth	0	0	2.6	5.2	5.2
Accessory Dwelling Units (ADU) for Eaves and Single-Family Homes ¹	2.9	4.0	4.2	4.2	4.2
2023-2031 Residential Development to Achieve RHNA (Other Sites in the Sites Inventory)	0	61	61	61	61
Other/Additional Residential Development (Other Sites in the Sites Inventory)	0	0	32	70	108
Subtotal Developments	62	352	474	515	553
Net Demand Reduction Due to Water Neutrality Growth Ordinance ²	11	292	350	390	428
Subtotal Developments With Net Demand Reduction Due to Water Neutrality Growth Ordinance	51	60	125	125	125
Estimated Total System Water Loss ³	4	5	10	10	10
Grand Total Net New Development Demand⁴	55	65	134	134	134

¹ A total of 56 ADUs are assumed to be constructed from development of the Eaves ADUs (22) in 2024 and single family ADUs (34) between 2020 and 2031. The City has assumed, for the purposes of this WSA, that no ADUs will be constructed after the RHNA planning period ends in 2031. The City has assumed, for the purposes of this WSA, that 50% of ADUs will be greater than 750 square feet and that those ADUs will be expected to comply with the Water Neutrality Growth Ordinance thus resulting in a net new demand of 2.1 AFY.

² This row represents the estimated net demand for the development projects that may be subject to the Water Neutrality Growth Ordinance, thus rendering their estimated demand neutral for this WSA.

³ With all future development demand in the service area captured in this table, estimated total system water losses were apportioned to the subtotal development with net demand reduction due to Water Neutrality Growth Ordinance at 7.75% based on the average year 2020 and 2021 EMID AWWA validated water loss audits.

⁴ In some cases, values are rounded to the nearest single digit and totals may not align due to rounding.

Table D-8 shows the total system demand projected for EMID during non-drought (normal) conditions compared to EMID's SFPUC supply assurance. The total system demand is calculated by adding the grand total net development demand from Table D-7 to the system demand projections from Table D-6. Net new demand from development projects takes into consideration the implementation of the Water Neutrality Growth Ordinance and includes an apportioned total system water loss, as noted in Table D-7.

TABLE D-8 PROJECTED TOTAL SYSTEM DEMAND WITH DEVELOPMENT PROJECTS

Total System Demand, No Drought¹	2020	2025	2030	2035	2040	2045
Demand Projection for EMID, with Passive and Active Conservation, AFY	4,896	4,648	4,371	4,223	4,100	4,113
Net New Demand from Development Projects, AFY ²	-	55	65	134	134	134
Total System Demand, AFY	4,896	4,703	4,436	4,357	4,234	4,247
SFPUC Supply Assurance, AFY	6,610	6,610	6,610	6,610	6,610	6,610
Estimated Remaining SFPUC Supply, AFY	1,715	1,907	2,175	2,253	2,376	2,363
Est. Remaining Supply Reliability %	26%	29%	33%	34%	36%	36%

¹ In some cases, values are rounded to the nearest single digit and totals may not align due to rounding.

² Net new demand from development projects reflects the estimated demand reduction due to implementation of the Water Neutrality Growth Ordinance (based on March 2023 project status information) and the inclusion of system water loss, as shown in Table D-7.

Table D-9 shows a comparison of the supply allocations from Table D-4 and projected total system demands from Table D-8 through the 20-year planning horizon as required by Water Code Section 10910. As discussed in Table D-4, during a period of five consecutive dry years starting in 2025, the SFPUC's plan calls for a 48 percent supply reduction of the normal year supply in the first year, followed by a 41 percent reduction of the normal year supply for each of the next four years. This level of reduction varies in subsequent future years. To meet the reductions, EMID will have to cut back its consumption in kind by implementing its WSCP based on the severity of the drought. In 2020, EMID refined its WSCP to achieve water savings of up to 20 percent in a Level 2 Drought, rather than the previous 15 percent goal that was targeted.

As shown in Table D-9, there will continue to be sufficient supplies to meet all projected demand, including the additional demand generated from the proposed developments, in non-drought (normal) conditions until year 2045. There will not be sufficient supplies under dry year conditions even with EMID's implementation of the mandatory demand reduction as outlined in the EMID WSCP and with implementation of the Water Neutrality Growth Ordinance. The WSCP and Water Neutrality Growth Ordinance would reduce shortfalls from inadequate water supplies within the EMID service area if the SFPUC reduces water deliveries to EMID (as would occur during a prolonged drought) but would not eliminate all estimated shortfalls in dry year conditions.

**TABLE D-9 ANNUAL SUPPLY ALLOCATION VS. MULTIPLE DRY YEARS DEMAND (AFY) WITH DEMAND REDUCTION IN DRY YEARS
CONSISTENT WITH EMID'S 2020 REVISED WATER SHORTAGE CONTINGENCY PLAN¹**

Year	Topic	Normal Year	Single Dry Year & Multiple Dry Year 1	Year 2	Year 3	Year 4	Year 5
			Demand Reduction %				
			10%²	20%³	30%⁴	40%⁵	50%⁶
2020⁷	Actual 2020 Demand	4,896	4,896	4,896	4,896	4,896	4,896
2025	Maximum Allocation	6,610	3,170	2,716	2,716	2,716	2,716
	Demand (NOT Including Proposed Developments)	4,648	4,183	3,718	3,254	2,789	2,324
	Demand (Including Proposed Developments' NET Demand)⁸	4,703	4,233	3,762	3,292	2,822	2,351
	Excess/Shortfall (NOT Including Proposed Developments)	1,962	-1,013	-1,003	-538	-73	392
	Excess/Shortfall (Including Proposed Developments' NET Demand)⁸	1,907	-1,062	-1,046	-576	-106	365
2030	Maximum Allocation	6,610	3,219	2,762	2,762	2,762	2,762
	Demand (NOT Including Proposed Developments)	4,371	3,934	3,497	3,059	2,622	2,185
	Demand (Including Proposed Developments' NET Demand)⁸	4,436	3,992	3,549	3,105	2,661	2,218
	Excess/Shortfall (NOT Including Proposed Developments)	2,240	-714	-735	-297	140	577
	Excess/Shortfall (Including Proposed Developments' NET Demand)⁸	2,175	-773	-787	-343	101	544
2035	Maximum Allocation	6,610	3,275	2,808	2,808	2,808	2,572
	Demand (NOT Including Proposed Developments)	4,223	3,800	3,378	2,956	2,534	2,111
	Demand (Including Proposed Developments' NET Demand)⁸	4,357	3,921	3,486	3,050	2,614	2,178
	Excess/Shortfall (NOT Including Proposed Developments)	2,388	-526	-570	-148	274	460
	Excess/Shortfall (Including Proposed Developments' NET Demand)⁸	2,253	-647	-677	-242	194	393

Year	Topic	Normal Year	Single Dry Year & Multiple Dry Year 1	Year 2	Year 3	Year 4	Year 5
			Demand Reduction %				
			10% ²	20% ³	30% ⁴	40% ⁵	50% ⁶
2040	Maximum Allocation	6,610	3,354	2,879	2,879	2,538	2,538
	Demand (NOT Including Proposed Developments)	4,100	3,690	3,280	2,870	2,460	2,050
	Demand (Including Proposed Developments' NET Demand) ⁸	4,234	3,811	3,387	2,964	2,540	2,117
	Excess/Shortfall (NOT Including Proposed Developments)	2,511	-336	-401	9	78	488
	Excess/Shortfall (Including Proposed Developments' NET Demand) ⁸	2,376	-456	-509	-85	-3	421
2045	Maximum Allocation	6,610	3,020	3,020	3,020	2,566	2,566
	Demand (NOT Including Proposed Developments)	4,113	3,702	3,290	2,879	2,468	2,057
	Demand (Including Proposed Developments' NET Demand) ⁸	4,247	3,823	3,398	2,973	2,548	2,124
	Excess/Shortfall (NOT Including Proposed Developments)	2,497	-682	-271	141	98	509
	Excess/Shortfall (Including Proposed Developments' NET Demand) ⁸	2,363	-803	-378	47	17	442

¹ In some cases, values are rounded to the nearest single digit and totals may not align due to rounding.

² Assumes WSCP Supply Shortage Level 1

³ Assumes WSCP Supply Shortage Level 2

⁴ Assumes WSCP Supply Shortage Level 3

⁵ Assumes WSCP Supply Shortage Level 4

⁶ Assumes WSCP Supply Shortage Level 5

⁷ 2020 data is based on actual numbers.

⁸ Proposed developments' net demand reflects the estimated demand reduction due to implementation of the Water Neutrality Growth Ordinance (based on March 2023 project status information) and the inclusion of system water loss, as shown in Table D-7. This will determine the limits of the available water supply and required demand offsets for any future applicable development projects.

2. Supply and Demand Conclusion

In conclusion, the existing and planned future uses evaluated in this WSA will generate a net new water demand by year 2045 of 134 AFY post year 2020 baseline EMID 2020 UWMP demand with the enforcement of the Water Neutrality Growth Ordinance. The water demand associated with the 2023-2031 Housing Element and the existing and future uses evaluated in this WSA will be accommodated by EMID's existing supplies during non-drought years within a 20-year projection.

As documented in Table 7-5 in the EMID 2020 UWMP, during single and multiple dry years, EMID's total annual water demand is expected to exceed EMID's available water supplies from 2025 to 2045. The estimated demand from the 2023-2031 Housing Element in addition to the existing and planned future uses evaluated in this WSA, will exacerbate the projected supply shortfall documented in EMID's 2020 UWMP during single and multiple dry years. There will not be sufficient supplies under dry year conditions even with EMID's implementation of the mandatory demand reduction as outlined in the EMID WSCP and with implementation of the Water Neutrality Growth Ordinance. The WSCP and Water Neutrality Growth Ordinance would reduce shortfalls from inadequate water supplies within the EMID service area if the SFPUC reduces water deliveries to EMID (as would occur during a prolonged drought) but would not eliminate all estimated shortfalls in dry year conditions. Therefore, this WSA concludes that there is not "sufficient water supply" (per Government Code 664737.7 (a)(2)) available to meet the demands of the 2023-2031 Housing Element, in addition to the existing and planned future uses evaluated in this WSA, during single-dry and multiple dry water years within a 20-year projection.

F. APPROACHES TO ADDRESSING PROJECTED SUPPLY SHORTFALLS

This WSA has concluded that EMID's water supplies are, or will be, insufficient during single-dry and multiple dry water years. Per Water Code Section 10911, EMID shall consider this projected insufficiency and shall provide the City with its plans to acquire and develop additional water supplies. Prior to issuance of future development project entitlements, utility analyses shall be performed by the project developer to determine whether existing transmission/distribution infrastructure has adequate capacity to deliver the needed water to the development project sites.

As described in Section D.2, EMID will imminently be adopting a Water Neutrality Growth Ordinance. EMID has also updated its WSCP, as described in Section C.6, and will continue to invest in and implement ongoing and long-term demand management measures. As documented in the EMID 2020 UWMP, EMID has no approved plans for acquiring additional water supplies as a retailer. Although EMID does not currently use recycled water, it is coordinating with the City of San Mateo, SFPUC, and BAWSCA to assess potential options for producing and using recycled water in the future to assist with offsetting future new potable demands. A description of SFPUC, BAWSCA, and EMID's approaches to addressing projected dry year supply shortfalls is described in the following sections.

1. Demand Management Measures

EMID implements a variety of water demand management measures (DMMs). As documented in the EMID 2020 UWMP, EMID is a participant in BAWSCA's Regional Water Conservation Program

and is currently participating in BAWSCA provided subscription-based conservation programs. EMID also makes water conservation tips available online and in brochures to educate customers. Every year during the National Public Works Week, local schools and teachers are invited to participate in water facility tours and activities to promote water conservation. Table D-10 presents the water DMMs EMID is currently implementing or planning to implement according to the EMID 2020 UWMP and the City's Water Conservation Rebate Programs webpage.

TABLE D-10 WATER DEMAND MANAGEMENT MEASURES^{1,2}

Measure Name	Target Sector	Description
Water Conserving Landscape & Codes	SF, MF, CII	Develop and enforce Water Efficient Landscape Design Standards. Standards specify that development projects subject to design review be landscaped according to climate appropriate principals, with appropriate turf ratios for residential developments (no turf at commercial, industrial, and institutional developments), plant selection, efficient irrigation systems, no irrigation of non-functional turf, and smart irrigation controllers.
Water Waste Prevention Ordinances	SF, MF, CII, IRR	Chapter 8.12 of the EMID code states that "No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, seriously affecting the general service, the district may discontinue the service if such conditions are not corrected within the time specified in the written notice. (Ord. 126 § 1 (part), 2009)."
Metering	SF, MF, CII, IRR	All water service connections are metered, with the exception of fire services. Many non-residential and multi-family customers have sub-meters to monitor water use for landscape irrigation separately from indoor uses. All EMID meters were upgraded to an Advanced Metering Infrastructure (AMI) system over the period of 2008 through 2015.
Conservation Pricing	SF, MF, CII, IRR	The water consumption charge is tiered such that customers are billed at a lower rate for lower water use and a higher rate for high water use. Effective July 2015, the rate structure for the water consumption charge includes two tiers of bimonthly water use.
School Education Program: Earth Capades	SF, MF	School assemblies that teach water science and conservation to students, including local water source and watershed education and specific information pertaining to the EMID service area. The EMID participates through the BAWSCA Regional Water Conservation Program.
Water-Wise School Education Kits and Curriculum	SF, MF	Fifth grade teachers are provided with a water conservation curriculum. Kits are distributed to 5th grade students that enable them to install water saving devices and perform a water audit in their home. EMID participates through the BAWSCA Regional Water Conservation Program.
Online Water Management Tool	SF, MF, CII, IRR	EMID offers an online water management and billing tool to its customers. By visiting the online portal, EMID

Measure Name	Target Sector	Description
		customers can pay their bills electronically, view water use reports, and detect water leaks.
Information Booths at Public Events	SF, MF, CII, IRR	At public events, EMID distributes information and materials to participants regarding its water conservation programs.
Other Outreach	SF, MF, CII, IRR	EMID maintains pages on the City of Foster City's website (http://www.fostercity.org) that are dedicated to its water conservation programs. The website provides information regarding EMID's rebate programs, water regulations, conservation tips and links to interactive tools such as Water-Wise Gardening in the Bay Area. EMID encourages water conservation and markets its rebate programs through various methods including newsletters, bill inserts, and ads at the EMID facilities.
Programs to Assess and Manage Distribution System Real Losses	Non-Revenue	EMID has an active program to manage loss, which includes staff trained to perform regular visual inspections and respond to public complaints. Repairs are performed immediately when leaks are detected (EKI, 2016).
Conservation Program Coordination and Staff	SF, MF, CII, IRR	EMID employs staff and funds the water conservation program.
Landscape Analysis Program	MF, CII	Free landscape analyses (value of \$1,400) are offered to commercial and multifamily residential accounts and provide customers with reports on how to improve landscape water efficiency. EMID participates through the BAWSCA Regional Water Conservation Program.
Large Landscape Water Budgets	IRR	EMID distributes water budgets to all dedicated irrigation accounts. Water rates charged to these irrigation accounts are increased if an account exceeds its annual water budget.
Lawn Be Gone! Turf Replacement Rebates	SF, MF, CII	Customers are offered \$4 per square foot of turf removed and replaced with water efficient landscaping, up to a \$5,000 rebate. The new landscape must include at least 80 percent live plant coverage, permeable hardscape, and all plants must be low water use plants from the BAWSCA-approved plant list. EMID participates through the BAWSCA Regional Water Conservation Program.
Synthetic Turf Replacement Rebates	SF, MF, CII	EMID administers a turf rebate replacement program that financially incentivizes replacement of turf with synthetic turf. Since May 2011, EMID has offered its customers \$4 per square foot of turf removed up to a maximum \$5,000 rebate for residential customers and up to \$10,000 for large landscape customers. To qualify for participation in this program, customers must arrange for a preinstallation on-site visit by EMID staff.
Smart Irrigation	SF, MF, IRR	EMID administers a smart irrigation controller rebate program for its residential and irrigation customers. To qualify, the smart irrigation controller must have gone

Measure Name	Target Sector	Description
Controller Rebates		through the Irrigation Association's Smart Water Application Technology testing protocol or display the WaterSense label.
Pressure Regulating Sprinkler Heads & Rotating Nozzle Rebates	SF, MF, IRR	EMID administers a water saving sprinkler & nozzle replacement program. The maximum for residential customers is up to \$4 a set with a limit of 15 sets. Large landscape properties may be eligible for \$4 per set with no limit on quantity. To qualify for participation in this program, customers must arrange for a pre-installation onsite visit by EMID staff. From 2016 through 2020 EMID granted 9 rebates for this program.

¹Foster City. Public Works Water Conservation Rebate Programs webpage, accessed December 2022:

<https://www.fostercity.org/publicworks/page/water-conservation-rebate-programs>

²Erler & Kalinowski, Inc. 2020 Urban Water Management Plan for Estero Municipal Improvement District, 9.2 Agency Water Conservation, July 2021.

2. SFPUC

The EMID 2020 UWMP Section 7.1.3.5 - Strategies and Actions to Address Dry Year Supply Shortfalls states the following:

Water System Improvement Program

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 Project (GSRP) 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 percent 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 acre-feet). 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.

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts with a system demand of 265 MGD, and to mitigate the impacts of the Bay-Delta Plan, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP. Furthermore, the permitting obligations for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements include a combined commitment of 12.8 MGD for instream flows on average. When this is reduced for an assumed Alameda Creek Recapture Project recovery of 9.3 MGD, the net loss of water supply is 3.5 MGD.

Alternative Water Supply Program (AWSP)

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 percent system-wide during droughts, and (5) the potential need to identify water supplies that would be required to offer permanent status to interruptible customers. Developing additional supplies through this program would reduce water supply shortfalls and reduce rationing associated with such shortfalls. The planning priorities guiding the framework of the 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 percent system-wide reduction in water service during extended droughts;
- Diversify water supply options during non-drought and drought periods;
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers;
- Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat;
- Maintain operational flexibility (although this LOS Goal was not intended explicitly for the addition of new supplies, it is applicable 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.

3. BAWSCA

The EMID 2020 UWMP Section 7.1.3.5 - Strategies and Actions to Address Dry Year Supply Shortfalls states the following:

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 Individual Supply Guarantee (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 (BARR), 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 Work Plan. In this way, actions can be modified to accommodate changing conditions and new developments.

4. EMID

EMID has been and will continue to implement demand management measures to address supply shortfalls by reducing potable demand and will evaluate opportunities to use recycled water. In addition, EMID is collaborating with regional partners to advocate for the development of additional supplies. To reduce the future demand for water from new growth or expanded redevelopment projects, the City and EMID will be developing a water neutral growth policy. If needed, EMID also has the option to purchase water from another agency within or outside of the SFPUC RWS. As documented in this WSA in Section C.6, EMID has recently updated its Water Shortage Contingency Plan which will further reduce demand during dry years.

a. Recycled Water

As documented in the EMID 2020 UWMP, there is currently no recycled water use in the EMID service area. EMID is in the initial phases of recycled water planning and has not developed recycled water use projections for the EMID service area. However, as of January 2023, the San Mateo Wastewater Treatment Plan expansion project has completed phases 1 & 2 and has entered phase 3 of construction.¹⁷ The EMID 2020 UWMP Section 6.2.5 - Current and Projected Uses of Recycled Water states the following:

In 2013, Foster City conducted a market assessment and conceptual project development for potential recycled water use in the EMID service area (RMC, 2013). The objectives of this study were to: (1) estimate the quantity and types of potential recycled water customers within Foster City, (2) develop a conceptual recycled water distribution system to connect as many potential users as possible in a cost-effective manner, and (3) estimate the capital and operations and maintenance (O&M) costs of the conceptual project (RMC, 2013). The study identified a potential demand for 741 MG per year (2.03 MGD) of recycled water within the EMID service area; potential recycled water uses identified included landscape irrigation at parks, a golf course, roadway medians, Homeowner Association (HOA) landscaped areas, business parks, and filling of ponds (RMC, 2013). The study estimated that the potential capital costs associated with the construction of recycled water treatment, distribution, and storage costs could be

¹⁷ San Mateo Clean Water Program. Wastewater Treatment Plant Nutrient Removal and Wet Weather Flow Management Upgrade and Expansion Project. <https://cleanwaterprogramsanmateo.org/wwtp/>

approximately \$11,935,000 and that the ongoing operations and maintenance costs associated with the treatment and distribution systems would be approximately \$129,000 per year (RMC, 2013).

In 2014, EMID and City of San Mateo jointly submitted a Water Recycling Facilities Planning Grant Application to the State Water Resources Control Board (SWRCB) Division of Financial Assistance, Office of Water Recycling (RMC, 2014). The Recycled Water Feasibility Study Plan of Study associated with the grant application proposed to develop a facilities plan for a potential recycled water treatment and distribution system to serve recycled water users within both Foster City and San Mateo (RMC, 2014). The grant was awarded, and the first phase of the facilities plan, specifically a revised Market Assessment, was completed in 2015 (HydroScience, 2015). This updated market assessment identified sixteen major potential recycled water customers within Foster City, with a total potential recycled water demand of 138 MG per year (0.38 MGD) (HydroScience, 2015).

Using a grant from the SWRCB, EMID and City of San Mateo completed a Recycled Water Facilities Plan (RWFP) in 2017 that identified opportunities to provide recycled water to both services areas (HydroScience, 2017). The RWFP included updated near-term recycled water demand forecasts for both cities and presents possible alternatives for implementation of recycled water as well as a cost and time breakdown of activities. The RWFP developed a preferred alternative for a recycled water distribution system with up to a total of 30 miles of 6-inch to 24-inch pipeline and identified up to 281 MG per year of potential recycled water irrigation uses in the EMID service area that could be served by the distribution system. The implementation of the RWFP was broken up into five phases with an estimated 18-year implementation timeline. The estimated cost for the distribution system and on-site retrofit capital improvements was approximately \$66.5 million of which approximately \$24 million would be EMID's share.

In addition to evaluating non-potable recycled water uses, the RWFP also reviewed opportunities to use recycled water produced at the WWTP for regional potable reuse opportunities. The RWFP identified a preferred regional potable reuse alternative of installing a pipeline from the WWTP to the SFPUC's Lower Crystal Spring Reservoir discussed further in Section 7.1.3.5 for purposes of supplying recycled water for surface water augmentation.

Based on the findings of this study and the estimated costs associated with constructing a new recycled water distribution system presented in the RWFP, EMID staff consider the regional potable reuse opportunities a more viable alternative at this time. EMID and other agencies including the City of San Mateo, SFPUC and BAWSCA, among others, have been participating in the development of the Potable Reuse Exploratory Plan (PREP) since 2016. PREP Phase 3 is currently underway to develop a feasibility study for augmenting potable water demand for the San Francisco Bay region via Indirect Potable Reuse and Direct Potable Reuse. Given the uncertainty in future uses of recycled water in the service area, recycled water was not quantified or included in EMID's 2020 UWMP.

b. Water Exchanges and Transfers

The EMID 2020 UWMP Section 6.7.1 - Exchanges and Transfers states the following:

There are potential transfer and exchange opportunities within and outside of the SFPUC RWS. 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 RWS.

Within the SFPUC RWS, it is possible to transfer water entitlements or banked water among agencies. The Water Shortage Allocation Plan (WSAP) 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 RWS (see Section 7.1.1.1). 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 RWS is a more complex process than transfers within the 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 (see Section 7.1.3.5 of the 2020 EMID UWMP).