Water Supply Assessment

City of East Palo Alto

2535 Pulgas Avenue

Performed for:

City of East Palo Alto

Project location:

East Palo Alto, California

Prepared by:

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AF	Acre-Foot or -Feet (i.e., 1 acre x 1 foot deep)
AFY	Acre-Feet per Year
AWSP	Alternative Water Supply Planning Program
BAWSCA	Bay Area Water Supply and Conservation Agency
CEQA	California Environmental Quality Act
DWR	California Department of Water Resources
EPA	City of East Palo Alto
EPASD	East Palo Alto Sanitary District
ET	Evapotranspiration
°F	Degrees Fahrenheit
ft-bgs	feet below ground surface
GPCD	Gallons Per Capita Per Day
gpm	Gallons Per Minute
ISA	Interim Supply Allocation
ISG	Individual Supply Guarantee
ISL	Interim Supply Limitation
MG	Million Gallons
mgd	Million Gallons Per Day
mg/L	Milligrams Per Liter
O'Connor Tract	O'Connor Tract Co Op Water Company
PAPMWC	Palo Alto Park Mutual water Company
PEIR	Program Environmental Impact Report
psi	Pounds Per Square Inch
RWQCP	Regional Water Quality Control Plant
RWS	San Francisco Regional Water System
SB	Senate Bill
SBSA	South Bayside System Authority
SBSARTP	Regional Treatment Plant
SFPUC	San Francisco Public Utilities Commission
SFPUC Agreement	Water Supply Agreement, July 2009
SMCL	Secondary Maximum Contaminate Level
WBSD	West Bay Sanitary District
WSA	Water Supply Assessment
WSAP	Water Shortage Allocation Plan
WSIP	Water System Improvement Program

1.0 INTRODUCTION

This Water Supply Assessment (WSA) has been prepared to assist the City of East Palo Alto Planning Department in satisfying the requirements of Senate Bill 610 (SB 610) for the 2535 Pulgas Avenue Project (Proposed Project). The stated intent of SB 610 is to strengthen the process by which local agencies determine the adequacy, sufficiency, and quality of current and future water supplies in order to meet current and future demands.

Along with the Proposed Project, the City is in the process of considering approval of additional developments. Although these projects do not require a WSA, the analysis must include existing uses as well as any known future uses.

The City of East Palo Alto, Community and Economic Development Department, Planning and Housing Division is the lead agency for the Proposed Project. The City of East Palo Alto is providing this WSA pursuant to SB 610 for the purpose of ensuring there are sufficient water supplies available for the Proposed Project.

Water Code 10912 defines the "Projects" that are subject to a WSA and the Lead Agency's responsibilities related to the WSA. A WSA is required for:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use development that includes one or more of the uses described above.

(7) A development that would demand an amount of water equivalent to or greater than the amount of water required by a 500-dwelling-unit project.

(8) For Lead Agencies with under 5,000 water service connections, any new development that will increase the number of water service connections in the service area by ten percent or more.

SB 610 amended Water Code sections 10910 and 10912 to create a direct relationship between water supply and land use. In general terms, SB 610 requires the identification of an adequate 20-year water supply prior to constructing developments with more than 500 homes or the equivalent.

SB 610 was enacted in 2001 to improve the connection between water supplies and land use planning. It was intended to ensure greater communication between water providers and local planning agencies. Accordingly, SB 610 aims to ensure that land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to serve the projects.

Further, under SB 610, water supply assessments must be furnished to local governments for inclusion in the environmental documentation for certain projects (as defined in Water Code Section 10912 [a]) that are subject to the California Environmental Quality Act (CEQA).

A WSA is, at its heart, an informational document that the CEQA lead agency relies on in deciding whether to approve projects. In this way, a WSA is similar to other informational documents used to support the analysis of impacts in an Environmental Impact Report (EIR), such as biological resource studies.

This WSA:

- Provides information on the Proposed Project's water supply consistent with Water Code section 10620 et seq. (the Urban Water Management Act) and section 10910 et seq. (Water Supply Planning to Support Existing and Planned Future Uses).

- Provides data necessary to produce the sufficiency findings required by CEQA.

1.1 Project Description

The City of East Palo Alto has received a proposal to redevelop 2535 Pulgas Avenue in to an approximately 110,000 square foot office building, surface parking lot with landscaping.

The Proposed Project encompasses 3.86-acre site (APN 063121370), on the west side of Pulgas Avenue, within the Ravenswood Specific Plan area of the City of East Palo Alto. The project site is currently developed with two single-story wood frame buildings and storage areas used for equipment and vehicle storage by the current occupant, Touchatt Trucking. The existing one-story buildings onsite total approximately 5,741 square feet.

The project site is bounded by industrial uses and vacant parcels to the north, industrial uses to the east and west and a vacant parcel and the Ravenswood Health Center to the south. Vehicle access to the site is currently provided via one driveway on Pulgas Avenue. The Ravenswood Open Space Preserve is located 0.20-mile northeast of the project site.

The Proposed Project would demolish the existing buildings, improvements and parking associated with the existing industrial use onsite and redevelop the site with a new four story, approximately 110,000 square foot office building, surface parking lot, and landscaping. The new office building would have a maximum height of 78 feet (including mechanical screening) with approximately 55,000 square feet being used for JobTrain and approximately 55,000 square feet being used by Emerson Collective as general office space. The first floor of the proposed building would feature approximately 10,500 square feet of ground floor open space for a carpentry yard and a children's play area.

The Proposed Project would be built to the California Green Building Standards Code (CALGreen), which includes design provisions intended to minimize wasteful energy consumption. The proposed project would be designed to achieve the equivalent of LEED Silver certification and would include water efficient landscaping with irrigation design and low flow indoor water fixtures among other green building features.

The Proposed Project is considering constructing an on-site sanitary sewer treatment facility to serve the proposed office building. The on-site treatment facility would have a capacity of 6,000 gallons per day (gpd) and would be located in the southwest corner of the project site. The facility would have four main components: 1) 30,000-gallon buffer/emergency storage tank, 2) wastewater treatment plant, 3) sludge collector, and 4) 20,000-gallon recycled water storage tank. Two pipes would connect the on-site sanitary sewer treatment plant to the office building transporting sewage from the office building to the treatment facility and returning processed, reclaimed water from the treatment facility back to the office building. In total, the on-site sanitary sewer facility would occupy approximately 2,490 square feet.

Existing water demand is estimated to be approximately 316 gpd. Proposed Project water demand of 0.055 gpd/sf for office space is based on experience and previously approved BKF (project engineer) projects within East Palo Alto. Landscaping consists of primarily California Native low and very low water usage plants. Landscaping water demand is estimated to be 930 gpd. The required water demand for the office building is 6,005 gpd. The Proposed Project would increase the water demand for the site by 6,619 gpd or 7.4 AF annually.

1.2 General Plan Update

An update of the City of East Palo Alto General Plan was adopted in 2016. The General Plan Update provides the foundation for establishing goals, purposes, zoning, and activities allowed on each land parcel. A WSA was completed for the General Plan update which analyzed the expected growth within the City and its water demand on the City water systems through 2035.

1.3 2020 Urban Water Management Plan

The UWMP uses a service area-wide method in developing its water demand projections. This methodology does not rely on individual development demands to determine area-wide growth. Rather, the growth in water use for the entire service area was considered in developing long-term water projections for the City of East Palo Alto.

The UWMP is updated every five years as required by California law. This process entails, among other requirements, an update of water supply and water demand projections for water agencies. In the 2020 update (due July 1, 2021), the City is in the process of developing a revised demand forecast that will factor in the water demand and any new additional supplies to meet future demands.

1.4 Weather Data

The City of East Palo Alto is located within the San Francisco Bay region and is characterized by a Mediterranean climate with dry, warm summers and wet, cool winters. Table 1-1 gives data on the climate of the region. The area receives most of its rainfall between late October and early May and its warmest temperatures in May through September. The average annual rainfall for the City of East Palo Alto is approximately 15 inches with an average reference evapotranspiration (ETo) of 44.88.

Table 1-1 Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Rainfall (inches)	3.15	2.89	2.29	1.02	0.37	0.09	0.02	0.05	0.17	0.73	1.73	2.70	**15.21**
Ave Min Temperature (°F)	38.5	41.3	43.1	44.7	48.5	52.5	54.9	54.8	52.6	48.0	42.6	38.2	**46.6**
Ave Max Temperature (°F)	57.4	61.1	64.2	68.4	72.9	77.4	78.4	78.4	78.3	73.0	64.3	57.8	**69.3**
Average ETo (inches per month)	1.42	2.00	3.37	4.45	5.46	6.03	6.21	5.54	4.37	3.04	1.69	1.30	**44.88**

Sources: Monthly Average ETo Report (No. 171, Union City, San Francisco Bay Region), CIMIS, Department of Water Resources, Office of Water Use Efficiency; Western Regional Climate Center. Palo Alto, California (Station 046646) http://www.wrcc.dri.edu, Accessed November 10, 2020.

1.5 City of East Palo Alto Population

The City of East Palo Alto's water service area does not mirror the City boundaries. Therefore the population estimates must be adjusted accordingly for the areas served by Palo Alto Park Mutual and O'Connor Tract Cooperative Water Companies within the City limits.

The total projected population within the service area is expected to be 32,230 by 2045. The following population projections were developed in the City's 2015 UWMP and consistent with the General Plan Update and associated WSA.

Table 1-2 Population - Current and Projected

	2015	2020	2025	2030	2035	2040	2045
Service Area Population*	24,424	25,935	27,215	25,589	30,062	31,646	33,230

**Projected population growth based on City's General Plan (City of East Palo Alto, 2016)*

1.6 City of East Palo Alto Water Purveyors

The City's water system is operated as a public-private partnership between the City and Veolia North America (Veolia). The City serves the majority of the City of East Palo Alto. Other purveyors within City limits include the Palo Alto Park Mutual Water Company, which serves customers within the western portion of the City, and the O'Connor Tract Co-operative Water Company, which serves the southwestern portion of the City. The Proposed Project will be served by the City's water system.

1.6.1 City of East Palo Alto Water Purveyors

The City of East Palo Alto's public water system is run through the City's Department of Public Works under contract by Veolia. A major portion of the city's water system was formerly operated by the County of San Mateo under the name East Palo Alto County Waterworks District. The City of East Palo Alto assumed operation of the water distribution system from San Mateo County in 2001. Currently, Veolia manages the distribution, operation, and maintenance of the municipal water system on behalf of, and under contract with, the City of East Palo Alto. The City managed water system operates under Public Water System ID 4110024.

The City managed water system draws all of its current domestic water supply through three turnouts off the San Francisco Public Utilities Commission's (SFPUC) Bay Division Pipelines (BDPLs) 1 and 2 (see Figure 1-2). In addition, there are two one-way interties that serve Palo Alto Park Mutual and O'Connor Tract Co-operative Water Company and one intertie with City of Menlo Park. Treated water is supplied from the Hetch Hetchy Aqueduct at pressures ranging from 105 to 140 pounds per square inch (psi). The turnouts are located on the aqueduct near Willow Road, O'Brien Drive, and University Avenue. Pressure-regulating valves at each turnout reduce the pressure in the distribution system. The pressure-regulating valves are set at the following pressures: 70 psi at Willow Road, 75 psi at O'Brien Drive, and 75 psi at University Avenue. From the turnouts the water flows by gravity through the city's pressurized distribution network. The existing distribution system is a network of 1½-inch to 12-inch diameter pipes.

The City of East Palo Alto owns and operates one groundwater well located at the intersection of Gloria Way and Bay Road. The well has been redeveloped and is available for potable use.

There is currently no storage within the City of East Palo Alto's managed water system. The City managed water system relies solely on water from the SFPUC system for the storage necessary for equalization, fire flows, and emergency use.

The City has an adopted Capital Improvement Program intended to improve the City's water supply, storage, and delivery system

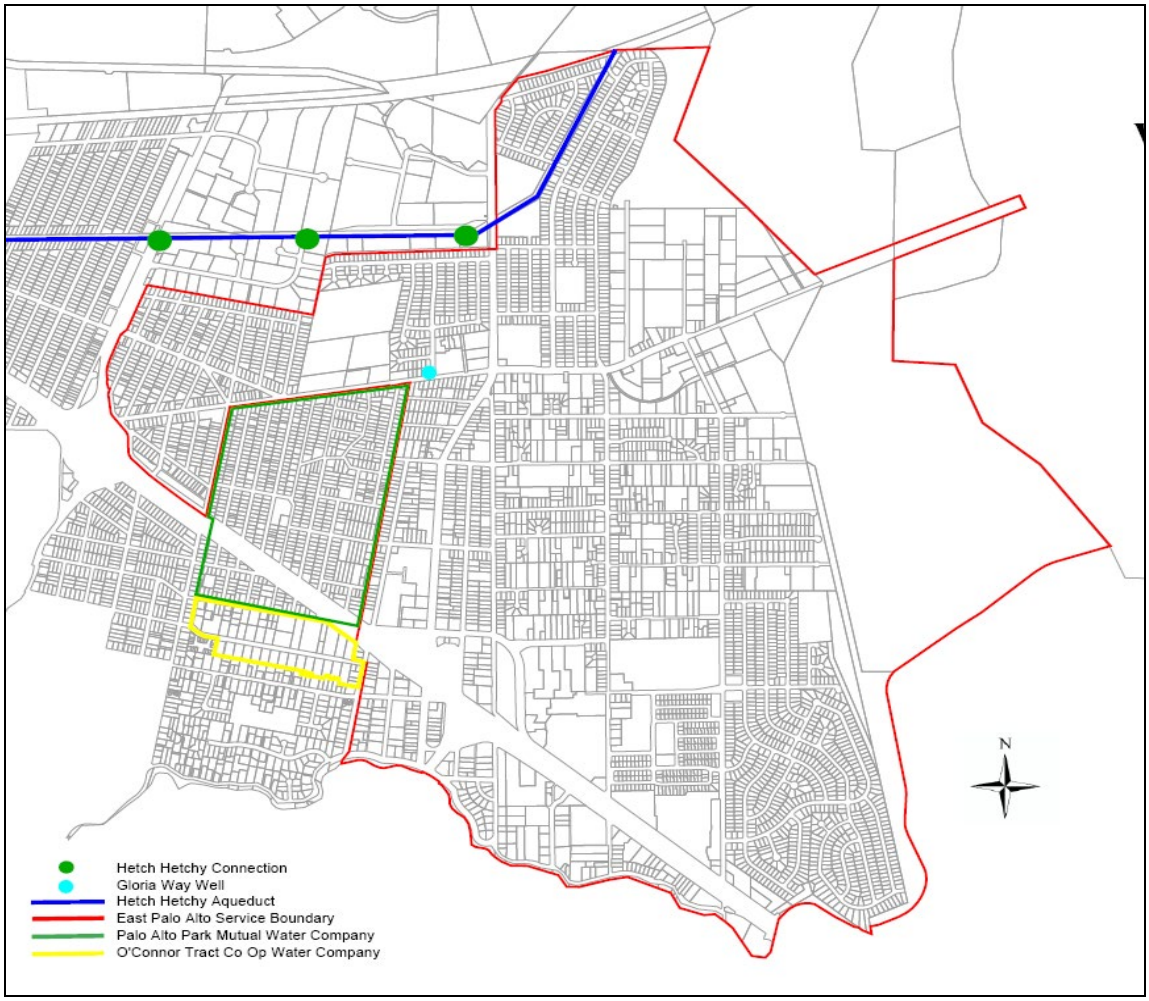
1.6.2 Palo Alto Park Mutual Water Company

Palo Alto Park Mutual Water Company is a non-profit mutual benefit corporation; a mutual water company incorporated in the state of California and owned by approximately 650 property owners in the Palo Alto Park area, a subdivision in East Palo Alto, and Menlo Park. Its area of service covers homes between Bay Road, Glen Way, Menalto (across the Bayshore Freeway), and Donohue. The company is not a public utility and can only sell water to the shareholders within the service area. Palo Alto Park Mutual Water Company is a groundwater system. The water is served by five (5) wells ranging from one hundred twenty-five to eight hundred gallons per minute and stored in two storage tanks with the capacities of 11,500 and 350,000 gallons.

1.6.3 O'Connor Tract Co-operative Water Company

O'Connor Tract Co-operative Water Company is a non-profit organization founded on January 31, 1921 to supply water to a small portion of East Palo Alto and Menlo Park. The Company serves approximately 343 connections. Its service area is bounded by Donohoe Street on the north, Woodland Avenue on the south, Menalto Avenue on the west, and Euclid Avenue on the east. The water is supplied from two deep wells and then pumped into a 100,000-gallon tank before being distributed to the system

Figure 2-1 City of East Palo Alto Water System Map



2.0 WATER SOURCES

The City of East Palo Alto managed water system receives all of its domestic water from the SFPUC with limited groundwater produced from the Gloria Way Well. The City has emergency interties with Palo Alto Park Mutual Water Company and O'Connor Tract Co-Op Water Company. The Proposed Project will be served by the City's water system.

Table 2-1 East Palo Alto Supply Sources

Supply	AFY	Right	Contract	Ever used
SFPUC	3,879		X	Yes
Groundwater	No Limit	X		Yes

2.1 San Francisco Public Utilities Company

The City of East Palo Alto receives water from the City and County of San Francisco's Regional Water System (RWS), operated by the SFPUC. This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties.

Through the RWS, SFPUC supplies to both retail and wholesale customers. Its retail customers include the residents, businesses and industries located within the City and County of San Francisco. SFPUC also provides retail water service to other customers located outside of San Francisco, including Treasure Island, the Town of Sunol, San Francisco International Airport, and Lawrence Livermore Laboratory. The SFPUC also sells water on a wholesale basis to 26 water agencies in San Mateo, Santa Clara, and Alameda Counties of which East Palo Alto is one.

The amount of imported water available to the SFPUC's retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir storage to firm-up its water supplies.

The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy. In practice, the local watershed facilities are operated to capture local runoff.

2.1.1 2009 Water Supply Agreement (Amended November 2018)

The business relationship between San Francisco and its wholesale customers is largely defined by the "Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County" entered into in July 2009 and amended in November 2018 (SFPUC Agreement). The SFPUC Agreement addresses the rate-making methodology used by the City in setting wholesale water rates for its wholesale customers in addition to addressing water supply and water shortages for the RWS. The SFPUC Agreement has a 25 year term, with provisions for two five-year extensions.

San Francisco has a perpetual commitment (Supply Assurance) to deliver 184 million gallons per day (mgd) to the 24 permanent wholesale customers collectively. San Jose and Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco. The Supply Assurance is allocated among the 24 permanent wholesale customers through Individual Supply Guarantees (ISG), which represent each wholesale customer's allocation of the 184 mgd Supply Assurance. To accommodate the demands of the City of Hayward the ISGs of the 24 wholesale customers (other than San José and Santa Clara) are subject to reduction on a pro-rata basis if total delivery to City of Hayward and to the wholesale customers exceeds 184 mgd.

The SFPUC Agreement provides for an Interim Supply Limitation (ISL) of 265 mgd, expressed on an annual average basis, through the year 2018. The Wholesale customer's collective allocation under the ISL is 184 mgd and San Francisco's is 81 mgd. As an incentive to keep deliveries below the ISL of 265 mgd, the SFPUC adopted an Environmental Enhancement Surcharge for collective deliveries in excess of the ISL effective at the beginning of FY 2011-12.

In the 2009 WSA, there are three decisions the SFPUC committed to making that will affect water supply development:

- Whether or not to make the cities of San Jose and Santa Clara permanent customers; Whether or not to supply the additional unmet supply needs of the wholesale customers beyond 2018.

- Whether or not to increase the wholesale customer Supply Assurance above 184 mgd.

- The SFPUC Agreement does not guarantee that San Francisco will meet peak daily or hourly customer demands when their annual usage exceeds the Supply Assurance

Events since 2009 made it difficult for the SFPUC to conduct the necessary water supply planning and CEQA analysis required to make these three decisions before 2018. Therefore, in the 2018 Amended and Restated WSA, the decisions were deferred for 10 years to 2028.

2.1.2 City of East Palo Alto Individual Supply Guarantees

In 2009, the City of East Palo Alto, along with 25 other Bay Area water suppliers signed the SFPUC Agreement with San Francisco, supplemented by an individual Water Supply Contract. These contracts, which expire in 25 years, provide for a 184 mgd (expressed on an annual average basis) Supply Assurance to the SFPUC's wholesale customers collectively. Prior to 2018, East Palo Alto's ISG was 1.963 mgd. In 2018 and 2019, a portion of ISG's from the City of Mountain View and the City of Palo Alto were permanently transferred to East Palo Alto, resulting in the City's current ISG of 3.463 (or approximately 3,879 acre feet per year). Although the SFPUC Agreement and accompanying Water Supply Contract expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely.

2.2 Local Groundwater

2.2.1 Background

East Palo Alto is located over the Santa Clara Valley Groundwater Basin, San Mateo Subbasin, and the San Francisquito Watershed. This San Mateo Subbasin is not adjudicated and has not been identified or projected to be in overdraft by the California Department of Water Resources. Several groundwater management plans have been developed for the San Mateo Subbasin.

2.2.2 Santa Clara Valley Groundwater Basin

The Santa Clara Groundwater Basin is located in the San Francisco Hydrological Unit as defined by the Department of Water Resources. The basin is further divided into four subbasins: Niles Cone, Santa Clara, San Mateo Plain, and East Bay Plain. The basin is defined as encompassing 345,300 square miles of the San Francisco Hydrological Unit. The basin straddles the southern portion of the San Francisco Bay and is bounded on the east side of the bay by the northwest trending Coast Range, on the west side of the bay to the north by San Pablo Bay, and to the south by the groundwater divide near the town of Morgan Hill. The Diablo Range bounds it on the west and the Santa Cruz Mountains form the basin boundary on the east.

2.2.3 Santa Clara Valley Groundwater Basin, San Mateo Subbasin

The City overlies the southern end of the San Mateo Plain Groundwater Subbasin of the Santa Clara Valley Groundwater Basin (DWR Basin 2-9.03). The San Mateo Plain Subbasin covers approximately 75 square miles on the west side of the San Francisco Bay Hydrologic Region. The San Mateo Subbasin occupies a geological trough running underground and parallel to the northwest-trending Coast Ranges at the southwest end of San Francisco Bay. The subbasin is bound by the Santa Cruz Mountains in the west, the San Francisco Bay on the east, the Westside Basin to the north and San Francisquito Creek to the south. The basin is composed of alluvial fan deposits formed by tributaries to San Francisco Bay that drain the basin.

The principal groundwater aquifers of the basin and subbasins are composed of interbedded coarse- and fine-grained alluvial fan deposits of San Francisquito Creek, extending from the Santa Cruz Mountains north and under San Francisco Bay, and distal alluvial fan deposits of the Niles Cone, extending from the Diablo Range. Most of the permeable alluvial sediments occurring in the groundwater subbasin and beneath the City originated from the Santa Cruz Mountains to the south-southwest; however, some alluvial sediments from the Niles Cone may interfinger under San Francisco Bay with sediments of the San Francisquito Cone.

The alluvial fan deposits vary in composition with distance from the head of the San Francisquito Cone. Deposits near the head of the fan are characterized as poorly sorted clays and gravels, and deposits near the central portion of the fan and the active stream course are generally cleaner sands and gravels. Deposits near the terminal or distal portion of the fan consist of finer-grained silts, clays and fine sands. Relatively finer-grained materials were deposited laterally away from the stream channel course. Overlying most of the alluvial sediments beneath the City are thick, laterally-extensive fine-grained materials, deposited when the area was below sea level. These Bay Mud sediments form a continuous aquitard or confining layer, thereby producing a multiple aquifer zone system.

The USGS (Metzger, 2002) characterized the groundwater aquifers and aquitards as a generalized three-layer system: an upper unconfined to confined shallow aquifer zone, a fine-grained Bay Mud unit near the Bay, and a deep principal aquifer beneath the confining layer. Most large production wells derive their water from the deep aquifer zone, at depths ranging from 200 to over 800 feet below ground surface (ft-bgs).

Shallow Aquifer Zone

The shallow aquifer zone underlying East Palo Alto is comprised of localized gravel-filled stream channels etched into a prevailing clayey surface in past geologic time and subsequently buried by younger sedimentary deposits. The shallow aquifer coarse-grained deposits are generally thin (10's of feet thick) localized groundwater bearing zones and form sinuous paths with limited lateral continuity. Some local domestic wells produce groundwater from this shallow aquifer zone, however most municipal groundwater production is from the deeper principal aquifer zone.

Bay Mud Aquitard

The Bay Mud aquitard occurs beneath San Francisco Bay and extends south-southwest under the entire City. There is a clear increase in aquitard thickness (up to 300 ft-bgs) in the northeast closer to the Bay. The unit does not extend to the foothills in the southwest. The southwestern extent of the Bay Mud aquitard has been mapped by USGS and others, and demarcates the unconfined and confined aquifer zones. The confined zone occurs in the subbasin's northern portion. The subbasin's southern portion, south of the aquitard, is an unconfined zone, and is generally characterized by permeable alluvial fan deposits. This portion of the groundwater subbasin is also a groundwater recharge area, where mountain-front recharge, rainfall infiltration, urban landscaping return flows and percolation of San Francisquito Creek water can directly recharge the principal aquifer.

Deep Aquifer Zone

The principal groundwater-bearing aquifer zone comprises unconsolidated to semi-consolidated gravel, sand, silt and non-marine clay that generally has high permeability and thickness compared with the overlying shallow aquifer zone and Bay Mud aquitard. Where the Bay Mud aquitard is present, the principal aquifer zone is confined. The thickness of the principal aquifer zone ranges from less than 100 feet near the Santa Cruz Mountains to almost 1,000 feet near San Francisco Bay. The principal aquifer zone underlying the City does not end at the shoreline of San Francisco Bay; rather it extends offshore beneath the Bay and may be hydraulically connected to aquifer zones in the southeast side of the Bay including the Niles Cone aquifer.

Natural recharge occurs by infiltration of water from streams that enter the valley from the upland areas within the drainage basin and by percolation of precipitation that falls directly onto the valley floor. It is estimated that the San Francisquito Creek adds about 1,000 acre-feet of recharge to the groundwater subbasin immediately underneath East Palo Alto annually. Infiltration of runoff from the foothills, over-irrigation, urban watering, and leakage from water distribution and storm water systems also contribute to groundwater recharge.

Historically, groundwater resources in the area were developed to meet irrigation needs. Heavy groundwater pumping from the early 1920s to the mid-1960s caused movement of saline water from San Francisco Bay inland and land subsidence in parts of Palo Alto and East Palo Alto. Since 1965, increased surface water deliveries from the Hetch Hetchy system has reduced groundwater demand and allowed the restoration of the groundwater subbasin to pre-1960 levels.

Surprisingly, the subbasin also benefits from the Alameda County Water District recharge program on the eastern side of the Bay. According to the Santa Clara Basin Watershed Management Initiative (2000), surface water spread by the District flows several hundred feet beneath the Bay and sustains groundwater pumping along the bayfront in Palo Alto, Menlo Park, East Palo Alto, and Mountain View.

The groundwater in the San Mateo Subbasin tends to be quite hard and have high concentrations of iron and manganese.

DWR Bulletin 118 states that there is no data regarding groundwater storage and groundwater storage capacity in this area. Additionally, there is no centralized database of groundwater elevation measurements by the County of San Mateo or local municipalities. The East Palo Alto Groundwater Management Plan estimates that the recharge of the basin is between 5,000 to 10,000 AFY and the discharge is 2,900 Acre Foot (AF). Due to the limited data, the groundwater level is considered relatively stable and the change in storage is about zero

2.2.4 Groundwater Quality

The groundwater in East Palo Alto has high levels of total dissolved solids (TDS), nitrate, iron and manganese. The United States Environmental Protection Agency standards for drinking water fall into two categories—Primary Standards and Secondary Standards. Elevated levels of these constituents make groundwater undesirable for potable use for aesthetic reasons.

TDS, chloride, Iron and manganese are classified under the Secondary Maximum Contaminant Level (SMCL) standards. The SMCL for iron in drinking water is 0.3 milligrams per liter (mg/L) and 0.05 mg/L for manganese. The SMCL for TDS is 500 mg/L with an upper limit of 1,000 mg/L and the SMCL for chloride is 250 mg/L.

Several of the wells in the area exceed the TDS SMCL of 500 mg/L, including the City's Gloria Way Well which had concentrations as high as 840 and the nearby wells of PAPMWC which have slightly lower concentrations. Additionally, chloride levels exceeding the SMCL have been found in the City's Gloria Way Well as high as 350 mg/L. Several wells have manganese concentrations exceeding the SMCL. The City's Gloria Way Well has had manganese concentrations as high as 0.19 mg/L. Some of the nearby PAPMWC and O'Connor Tract wells also have had manganese concentrations above the SMCL.

Although the wells in the area exceed these SMCL's the groundwater in the area is acceptable for potable and irrigation uses.

2.3 Groundwater Management Plan

In September 2014, the State enacted three legislative bills (AB 1739, SB 1168, and SB 1319), more commonly known as the Sustainable Groundwater Management Act. This legislation mandates sustainable management of groundwater resources and provides expanded powers to local public water agencies that organize as groundwater sustainability agencies. Sustainability is defined in terms of a basin's yield as the maximum long-term quantity of water that can be withdrawn annually without causing an undesirable result.

Compliance with the Sustainable Groundwater Management Act is required for groundwater basins or subbasins that have been designated by CDWR as medium- or high priority. Although the San Mateo Subbasin is considered to be of very low priority, the City, being proactive, developed a Groundwater Management Plan for the portion of the subbasin underlying the City.

In August 2015, the City adopted the first groundwater management plan within the Subbasin. The City's Groundwater Management Plan (GWMP) was prepared in accordance with Assembly Bill 3030, Senate Bill 1938, and Assembly Billy 359. The objectives of the GWMP were to:

- Provide the City with a long-term, reliable and affordable high quality supply;
- Maintain or improve groundwater quality and quantity for the benefit of all groundwater users; and
- Provide integrated water resource management for resilience during droughts, with service interruptions and emergencies, and with long-term climate change effects.

The GWMP identified six basin management objectives (BMOs) that express the desired achievements for the GWMP. The BMOs are intended to be measurable and achievable, and each BMO is associated with specific management actions. The BMOs are also intended to be adaptive and subject to regular re-examination and update as more information becomes available and as conditions change. The BMOs identified in the GWMP are as follows:

1. Maintain acceptable ground water levels.
2. Avoid subsidence
3. Protect groundwater quality
4. Integrate management of groundwater and surface water
5. Improve understanding of the groundwater system
6. Promote regional groundwater management

Additionally, San Mateo County has begun to participate in the CASGEM program. CASGEM is a groundwater elevation monitoring program that was developed by DWR per the requirements of SBx7 6. The objective of CASGEM is to establish a groundwater monitoring to track seasonal and long-term trends in groundwater elevations. In, 2019, The County of San Mateo Office of Sustainability provided initial notification to DWR of its intent to become the CASGEM Monitoring Entity for the subbasin. A CASGEM Monitoring Plan, including a monitoring network of approximately ten wells throughout the subbasin, was submitted to and approved by DWR in 2020 and monitoring pursuant to the CASGEM Plan has been initiated.

2.4 San Francisquito Watershed

The San Francisquito Creek Watershed covers approximately 45 square miles of the South Bay area, draining the east-facing slopes of the Santa Cruz Mountains through to the San Francisco Bay. The upper part of the watershed is rural and hilly, while the lower part of the watershed is urban and flat. The highest elevation in the watershed is approximately 2,200 feet.

The watershed is "probably the most inter-jurisdictionally complicated watershed in the Bay Area" (USGS 2003), enveloping the Cities of East Palo Alto, Menlo Park, Palo Alto, Portola Valley, Woodside, unincorporated areas in both San Mateo and Santa Clara Counties, and Stanford University. What's more, San Francisquito Creek forms the county line between San Mateo and Santa Clara Counties. The watershed is approximately 80 percent in San Mateo County and 20 percent in Santa Clara County.

The San Francisquito Creek fan encompasses approximately 22 square miles. The subbasin boundaries roughly correspond to the extent of the San Francisquito Creek alluvial fan. The City of East Palo Alto lies entirely on the alluvial fan of San Francisquito Creek sharing this floodplain with the Cities of Menlo Park and Palo Alto. Historically, during floods the swollen creek would deposit sand, silt, and gravel carried from the hills across the Baylands area. For thousands of years this process, coupled with the constantly changing course of the lower streambed, built up thick, fan-shaped sedimentary deposits of sand and gravel on which East Palo Alto and its neighbors now sit.

The San Francisquito Creek subbasin is composed of coarse- and fine-grained alluvial deposits of San Francisquito Creek. The groundwater system includes a shallow aquifer and a deep aquifer beneath a laterally extensive confining clay layer. The deep aquifer consists of an upper and lower zone. The groundwater subbasin is as much as 1,000 feet thick in places. The groundwater system includes a shallow aquifer that extends from the ground surface to about 15 to 100 ft-bgs and a deep aquifer beneath the confining layer that has two water-bearing zones. The upper zone is between 200 and 300 ft-bgs and the lower zone extends to depths greater than 300 ft-bgs.

San Francisquito Creek has an inadequate carrying capacity due to development, vegetation sedimentation, land subsidence, levee settlement and erosion. Flooding on the creek affects the cities of Menlo Park and East Palo Alto in San Mateo County, and Palo Alto in Santa Clara County. As a result of record rainfall in February 1998, San Francisquito Creek overtopped its banks, affecting approximately 1,700 residential and commercial structures. Due to the flooding, the cities of Palo Alto, Menlo Park, and East Palo Alto, the County of San Mateo, and the Santa Clara Valley Water District joined together to create a regional government agency, the San Francisquito Creek Joint Powers Authority (SFCJPA). The SFCJPA plans, designs, and implements projects along the creek.

The Cities of Menlo Park and East Palo Alto commissioned a study on the San Francisquito Creek Groundwater Subbasin (Watershed). The report developed by Todd Engineers provides a preliminary feasibility level evaluation of the potential supply and quality of groundwater resources in Menlo Park and East Palo Alto.

The report determined that supplemental wells could be installed by the City of East Palo Alto and Menlo Park for irrigation and/or potable use to augment existing water supplies in case of emergency or drought. Yields from a properly designed and sited large diameter well installed in the Cities can be expected to range from approximately 300 to 1,800 gallons per minute (gpm). The preliminary estimate of annual groundwater recharge in the San Francisquito Groundwater Subbasin ranges from approximately 4,000 to 8,000 AFY. The Cities could install supplemental wells to capture some portion of this annual recharge without depleting the groundwater resource.

2.4.1 Regional Groundwater Management

In September 2014, the City passed Resolution No. 4542 in support of sustainable groundwater management in the San Francisquito Creek area. This resolution was also passed by six other local agencies: Santa Clara Valley Water District, San Mateo County and the cities of Palo Alto, Menlo Park, Atherton, and Portola Valley. It represents a regional commitment to groundwater management.

Accordingly, per the resolution, the agencies resolved to collaborate with other agencies and organizations to better understand the hydrology and geology of the San Francisquito Creek area. They also stated their respective commitment to the sustainable management of local groundwater to protect its quality and ensure its availability during droughts and emergencies.

2.5 East Palo Alto Groundwater Supply

The City currently relies on the SFPUC for all of its domestic water supply. The City is in the process of expanding groundwater production to meet future water demands, as well as provide sufficient fire flow, and to provide the City with a supplemental potable water supply in the event of a water-quality breach, supply interruption, or other potential water supply emergency.

The City completed the redevelopment of the Gloria Way Well in 2017. The Gloria Way Well project included the installation of a new well pump, an iron and manganese treatment system and blending facility. The Gloria Way Well is blended with SFPUC water prior to being distributed to customers. The Gloria Way Well is capable of producing up to 300 gpm, or between 200 and 450 AFY of supplemental water supplies for the City, depending on produced water quality, storage infrastructure, timing of demands, and other operational constraints. However, the City is limited on how much the well is run due to permit restriction from the State of 150gpm or approximately 15AFY.

The City plans to develop additional local groundwater supplies by constructing a new water standby well and treatment system (the Pad D Well). The new well is planned to be located at the corner of Clarke Road and East Bayshore Drive, and its associated treatment system. In 2014, the City drilled, constructed, and tested a six-inch diameter test well at the Pad D site for the purposes of assessing local aquifer characteristics, water quality, and the potential yield of a municipal supply well at the Pad D site. The current work being completed includes the preparation of the required CEQA documents, permitting, and design of the well, pump, treatment/blending system, disinfection system, and associated controls and piping. It is anticipated that groundwater production from the Pad D Well will be limited to 33 AFY, assuming a 500-gpm pumping rate at up to 24 hours per day for 15-days per year (pumping would not occur for more than 5 consecutive days).

The combined production capacity of the wells is anticipated to be 48 AFY.

3.0 WATER SUPPLY RELIABILITY

Water supply reliability is a measure of the water provider's ability to provide an adequate water supply during times of shortage. The City has no storage and very limited groundwater production capacity. Therefore the City relies solely on SFPUC for its water supply. This section discusses the reliability of the City's water supplies during single and multiple dry years.

This following describes the constraints on the City's water supplies and the management strategies that affected agencies have employed or will employ to address these constraints.

3.1 Reliability of the Regional Water System

The SFPUC adopted Level of Service (LOS) Goals and Objectives in conjunction with the adoption of WSIP. The SFPUC updated the LOS Goals and Objectives in February 2020. The goals and objectives of the WSIP related to water supply are:

Program Goal	System Performance Objective
Water Supply – *meet customer water needs in non-drought and drought periods*	• Meet all state and federal regulations to support the proper operation of the water system and related power facilities. • Meet average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non–drought years for system demands consistent with the 2009 Water Supply Agreement. • Meet dry-year delivery needs while limiting rationing to a maximum 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.

3.2 Bay-Delta Plan Impacts

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The Bay-Delta Plan Amendment requires the release of 30-50% of the "unimpaired flow" on the three tributaries from February through June in every year type.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet the projected water demands presented in normal years but would experience supply shortages in single dry years or multiple dry years. Implementation of the Bay-Delta Plan Amendment will require rationing in all single dry years and multiple dry years. The SFPUC has initiated an Alternative Water Supply Planning Program (AWSP) to ensure that San Francisco can meet its Retail and Wholesale Customer water needs, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges and vulnerabilities such as environmental flow needs and other regulatory changes; earthquakes, disasters, and emergencies; increases in population and employment; and climate change. As the region faces future challenges – both known and unknown – the SFPUC is considering this suite of diverse non-traditional supplies and leveraging regional partnerships to meet Retail and Wholesale Customer needs through 2045.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain at this time.

3.3 Tier One and Tier Two Allocations

3.3.1 Tier One Drought Allocations

In July 2009, San Francisco and its Wholesale Customers in Alameda County, Santa Clara County, and San Mateo County (Wholesale Customers) adopted the Water Supply Agreement (WSA), which includes a Water Shortage Allocation Plan (WSAP) that describes the method for allocating water from the RWS between Retail and Wholesale Customers during system-wide shortages of 20 percent or less. The WSAP, also known as the Tier One Plan, was amended in the 2018 Amended and Restated WSA.

The SFPUC allocates water under the Tier One Plan when it determines that the projected available water supply is up to 20 percent less than projected system-wide water purchases. The following table shows the SFPUC (i.e, Retail Customers) share and the Wholesale Customers' share of the annual water supply available during shortages depending on the level of system-wide reduction in water use that is required. The Wholesale Customers' share will be apportioned among the individual Wholesale Customers based on a separate methodology adopted by the Wholesale Customers, known as the Tier Two Plan, discussed further below.

The Tier One Plan allocates water between San Francisco and the wholesale customers collectively based on the level of shortage:

Table 3-1 Interim Water Shortage Allocation Plan Tier One Reduction Rates

Level of System Wide Reduction in Water Use Required	Share of Available Water	
	SFPUC Share	Wholesale Customers Share
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%

The Tier One Plan allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. In addition, water "banked" by a wholesale customer, through reduction in usage greater than required, may also be transferred.

As amended in 2018, the Tier One Plan requires Retail Customers to conserve a minimum of 5 percent during droughts. If Retail Customer demands are lower than the Retail Customer allocation (resulting in a "positive allocation" to Retail) then the excess percentage would be re-allocated to the Wholesale Customers' share. The additional water conserved by Retail Customers up to the minimum 5 percent level is deemed to remain in storage for allocation in future successive dry years.

The Tier One Plan will expire at the end of the term of the WSA in 2034, unless mutually extended by San Francisco and the Wholesale Customers.

The Tier One Plan applies only when the SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code Section 350. Separate from a declaration of a water shortage emergency, the SFPUC may opt to request voluntary cutbacks from its Retail and Wholesale Customers to achieve necessary water use reductions during drought periods.

3.3.2 Tier Two Drought Allocations

The wholesale customers have negotiated and adopted the Tier Two Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers. This Tier Two allocation is based on a formula that takes into account multiple factors for each wholesale customer including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

The water made available to the Wholesale Customers collectively will be allocated among them in proportion to each Wholesale Customer's Allocation Basis, expressed in millions of gallons per day, which in turn is the weighted average of two components. The first component is the Wholesale Customer's Individual Supply Guarantee, as stated in the WSA, and is fixed. The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the Wholesale Customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain Wholesale Customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all Wholesale Customers' Allocation Bases to determine each wholesale customer's Allocation Factor. The final shortage allocation for each Wholesale Customer is determined by multiplying the amount of water available to the Wholesale Customers' collectively under the Tier One Plan, by the Wholesale Customer's Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the Wholesale Customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each Wholesale Customer will also change. However, for long-term planning purposes, each Wholesale Customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted.

Per WSA Section 3.11, the Tier One and Tier Two Plans will be used to allocate water from the Regional Water System between Retail and Wholesale Customers during system-wide shortages of 20% or less. For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis. For purposes of the 2020 UWMPs, for San Francisco Regional Water System (RWS) shortages in excess of 20%, the allocations among the Wholesale Customers is assumed to be equivalent among them and to equal the drought cutback to Wholesale Customer by the SFPUC.

The Tier Two Plan, which initially expired in 2018, has been extended by the BAWSCA Board of Directors every year since for one additional calendar year. In November 2020, the BAWSCA Board voted to extend the Tier Two Plan through the end of 2021.

3.4 SFPUC and Other Regional Strategies and Actions

3.4.1 Dry Year Supply Projects

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.
- Alameda Creek Recapture Project.
- Lower Crystal Springs Dam Improvements.
- Regional Groundwater Storage and Recovery Project.
- MGD Dry-year Water Transfer.

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts and to mitigate the impacts of the Bay-Delta Plan, SFPUC must successfully implement the dry-year water supply projects included in the WSIP.

3.4.2 Alternative Water Supply Program

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

In early 2020, the SFPUC began implementation of the Alternative Water Supply Planning Program (AWSP), a program designed to investigate and plan for new water supplies to address future long-term water supply reliability challenges and vulnerabilities on the RWS.

Included in the AWSP is a suite of diverse, non-traditional supply projects that, to a great degree, leverage regional partnerships and are designed to meet the water supply needs of the SFPUC Retail and Wholesale Customers through 2045. As of the most recent Alternative Water Supply Planning Quarterly Update, SFPUC has budgeted $264 million over the next ten years to fund water supply projects. BAWSCA is heavily engaged with the SFPUC on its AWSP efforts.

3.5 BAWSCA Long Term Reliable Water Supply Strategy

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

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

- Water transfers represent a high priority element of the Strategy.
- Desalination potentially provides substantial yield, but its high effective costs and intensive permitting requirements make it a less attractive drought year supply alternative.
- Other potential regional projects provide tangible, though limited, benefit in reducing dry-year shortfalls given the small average yields in drought years.

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

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

3.6 East Palo Alto Supply Reliability

In accordance with the SFPUC's perpetual obligation to East Palo Alto's Supply Assurance, East Palo Alto has an ISG of 3.463 mgd, or approximately 3,879 AF per year. SFPUC is obligated to provide East Palo Alto with up to 100% of East Palo Alto's ISG during normal years.

As provided in the Draft 2020 Urban Water Management Plan, BAWSCA provided single and five-consecutive dry-year allocations for East Palo Alto.

For planning purposes, Wholesale Agency drought allocations assume an equal percent reduction across all agencies when the average Wholesale Customers' RWS shortages are greater than 20%. These percent reductions assume the implementation of the Bay-Delta Plan Amendment in 2023.

Table 3-2 Wholesale Supply Availability During Normal and Dry Years

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%

4.0 EAST PALO ALTO WATER SUPPLY RESTRICTIONS

The City has implemented water planning policies which have limited its ability to approve new development projects due to the normal year water supply shortfall consistently reported in its water planning documents.

4.1 Restrictions

In September 2012, the City adopted the Ravenswood/4 Corners TOD Specific Plan which shapes future development of the northeastern portion of the City. The EIR Mitigation for the lack of water supply included a Specific Plan intended to ensure that an adequate water supply exists to support new development in the Ravenswood/4 Corners area. Policy UTIL-2.2 imposes the following requirement on the City's Planning Division:

> *Before individual development projects are approved in the Plan Area, require the developer to demonstrate verifiable, enforceable proof that either they have secured new water supplies to serve the new development or that the proposed development will create no net increase in total water demand in East Palo Alto. Ensure that environmental review is carried out for augmentations to the supply from additional groundwater pumping in the Specific Plan area and within a quarter mile radius.*

While Policy UTIL-2.2 applies only to the Ravenswood/4 Corners area, the General Plan Update builds upon this policy and establishes water supply policies for the City of East Palo Alto. The following policies under Infrastructure, Services, and Facilities Goal ISF-2 provide for instituting long-term strategies to sustainably manage limited water resources and lack of water supplies:

> *Policy 2.4 - Water supply planning and demand offset regulations for new or intensified development.*
>
> *Consider and adopt a water offset ordinance or other policy to reduce the water demand and to ensure adequate water supply exists to meet the needs of new projects or intensified development. Allow the City the right to require a Water Supply Assessment of any development project. The policy will consider the type or size of projects that might be exempt, the water offset ratio, the method for analyzing the projected water demand and methods for offset demand, the types of demand reduction/mitigation implementation options (e.g., onsite or offsite design or building modification), including an in-lieu fee, that will be required, a method for estimating the savings from onsite or offsite efficiency measures, and the appropriate regulatory instruments to enforce, implement, and monitor the offset policy.*
>
> *Policy 2.6 - Water infrastructure for new development.*
>
> *Require development projects to pay for their share of new water infrastructure or improvements necessitated by that development, including but not limited to water supply, storage, and conservation: and recycled water.*

5.0 WATER DEMANDS

5.1 City Water System Demands

The City of East Palo Alto managed water system receives all of its domestic water from the SFPUC RWS. The City is able to and has drawn groundwater out of this basin through its Gloria Way Well.

SFPUC has made available and the City has purchased water above the Individual Supply Guarantee (ISG) in the past. Consistent with existing agreements, this has been possible because other wholesale agencies have not used their full contractual supply.

Under the terms of the dissolution of the East Palo Alto County Waterworks District, the City is required to transfer up to 243 AFY of SFPUC water to the City of Menlo Park. The City does not consider water that is received on behalf of and immediately sold to the City of Menlo Park to be a part of its water supply or demand.

The following tables summarize the City water purchases from SFPUC as well as the groundwater production from the Gloria Way well.

Table 5-1 East Palo Alto Historical SFPUC Deliveries

Year	Purchase from SFPUC (AF)*
2010	1,933
2011	1,982
2012	2,083
2013	2,320
2014	1,863
2015	1,758
2016	1,577
2017	1,688
2018	1,737
2019	1,706
2020	1,755

**From 2020 DRAFT Urban Water Management Plan*

5.2 Proposed Project Demands

The Proposed Project site will consist of a new four story, approximately 110,000 square foot office building, surface parking lot, and landscaping. The Proposed Project would be built to the California Green Building Standards Code (CALGreen) and would be designed to achieve the equivalent of LEED Silver certification and would include water efficient landscaping with irrigation design and low flow indoor water fixtures among other green building features. Existing water demand is estimated to be approximately 316 gpd. Proposed project water demand of 0.055 gpd/sf for office space is based on experience and previously approved BKF (project engineer) projects within East Palo Alto. Landscaping will consist of primarily California Native low and very low water usage plants. Landscaping water demand is estimated to be 930 gpd. The required water demand for this office building is 6,005 gpd. The Proposed Project would increase the water demand for the site by 6,619 gpd or 7.4 AF annually.

Table 5-2 Proposed Project Usage

Site Use	Square feet	New Water Demand (AFY)
Building	110,000	6.4
Landscaping	21,865	1.0

The Proposed Project is considering constructing an on-site sanitary sewer treatment facility to serve the proposed office building. The on-site treatment facility would have a capacity of 6,000 gpd or 6.72 AFY and would be located on site. Approximately 4,800 gpd, 5.4AFY, could be used for non-potable and landscape use. It is estimated that the non-potable demand for the building is 4,016 and landscape demand is 930 gpd for a total non-potable use of 4,946 or 5.5 AF per year. The total potable water demand for the Proposed Project would be reduced to approximately 2.0 AFY.

6.0 WATER SUPPLY ANALYSIS

The City purchases water from the SFPUC to meet its potable water demands within the service area. In 2020 the City purchased approximately 1,755 AF. Over the period of 2015 through 2020 the City did not produce any groundwater for potable use. The City brought the Gloria Way well back on-line and is in the process of constructing the Pad D Well and plans to use groundwater in the City's future. The City's existing and future water supplies are summarized in Table 6-1.

Projected water demands are being updated in the 2020 UWMP developed by EKI Environmental & Water Inc. During the process, passive water conservation was considered and savings associated with existing water uses in the City's service area have been subtracted from the water demand projections. The total projected potable water demand in the City's service area, accounting for this projected passive conservation savings is estimated to be 1,078 MG, or 3,308 AF in 2045.

Table 6-1 Current and Projected Available Water Supply (AF)

Potable Water Sources	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
SFPUC	3,879	3,879	3,879	3,879	3,879	3,879
Groundwater	15	48	48	48	48	48
Total	**3,894**	**3,927**	**3,927**	**3,927**	**3,927**	**3,927**

Table 6-2 through 6-4 give the city's supply reliability scenarios for years 2025 through 2045:

Table 6-2 Supply and Demand Comparison Normal Water Year (AF)

	2025	**2030**	**2035**	**2040**	**2045**
Supply	3,927	3,927	3,927	3,927	3,927
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*1,803*	*1,714*	*1,536*	*1,082*	*619*

Table 6-3 Water Use Supply and Demand Comparison During Single Dry-Year (AF)

	2025	**2030**	**2035**	**2040**	**2045**
Supply	1,394	1,449	1,538	1,817	1,817
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*(730)*	*(764)*	*(853)*	*(1,028)*	*(1,491)*

Table 6-4 Supply and Demand Comparison During Multiple Dry-Years (AF)

	2025	2030	2035	2040	2045
Year 1					
Supply	1,394	1,449	1,538	1,817	1,817
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*(730)*	*(764)*	*(853)*	*(1,028)*	*(1,491)*
Year 2					
Supply	1,203	1,246	1,326	1,572	1,817
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*(920)*	*(966)*	*(1,065)*	*(1,273)*	*(1,491)*
Year 3					
Supply	1,203	1,246	1,326	1,572	1,817
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*(920)*	*(966)*	*(1,065)*	*(1,273)*	*(1,491)*
Year 4					
Supply	1,203	1,246	1,326	1,394	1,550
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*(920)*	*(966)*	*(1,065)*	*(1,451)*	*(1,758)*
Year 5					
Supply	1,203	1,246	1,225	1,394	1,550
Demand	2,124	2,213	2,391	2,845	3,308
Surplus/Deficit	*(920)*	*(966)*	*(1,166)*	*(1,451)*	*(1,758)*

As shown in the 6-2 through 6-4, the City will not be able to meet the demands of the City including the Proposed Project during single and multiple dry-year scenarios.

7.0 CONCLUSION

The Proposed Project is estimated to increase water demand on the City water system by 7.4 AFY. By year 2025, the current available City water supply will not be able to meet the demands of the water system during single and multiple dry-year conditions.

The City SFPUC supply is limited by its contractual limitations while the groundwater basin is not adjudicated and there are currently no groundwater pumping restrictions. As shown in this assessment, the City's existing water supplies are not sufficient to meet the demands associated with this Proposed Project and the City's expected growth. In order for the demands associated with the Proposed Project to be met during dry year scenarios, new water supplies must be acquired and developed.

The City is developing new water supplies to meet the demands for the proposed future growth. The City has committed or pending funding from sources including the San Mateo County Community Development Block Grants, Environmental Protection Agency State and Tribal Assistance Grants, and Integrated Regional Water Management Grants. On June 16, 2015, the City Council approved a Water Capital Improvement Surcharge for supply and storage projects that is estimated to generate approximately $500,000 per year for investing in supply and storage projects. The City is also planning to implement water supply and storage connection fees.

Additionally, Policy UTIL-2.2 and requires a development in the Ravenswood/4 Corners area to provide the City with enforceable, verifiable proof that an adequate water supply exists to supply the new or intensified development. The City has secured 1,500,000 gpd of additional SFPUC water and is seeking additional SFPUC water. Additionally, the capacity of the Gloria Way well is limited to 15 AFY and the planned Pad D well will be limited to 33AFY. The wells will not meet the demands during single and multiple during dry-years.

Groundwater Opportunities

The City is addressing the supply shortfall by developing a new groundwater well and treatment facility at Pad D. These projects are expected to produce 33AFY. The groundwater would be treated meet California drinking water standards. In the event shortages occur, the City could update permitting of the Pad D well and system to use it as a standard potable water source to supplement dry year supplies. The project is described more in Section 2.3.

Transfer and Exchange Opportunities

The SFPUC Agreement allows for the transfer or exchange of water among parties, both inside and outside of the RWS. It is possible to transfer ISG and/or unused portions of water allocations among contracting agencies within the SFPUC system. The Water Shortage Allocation Plan adopted by SFPUC and its wholesale customers provide for voluntary transfers of water among wholesale customers during periods when mandatory rationing is in effect within the RWS. Some wholesale customers have the capacity to draw more heavily on other water supplies, such as the State Water Project or groundwater, and may be willing to transfer a portion of their ISG to other customers.

The SFPUC Agreement and state law also allow purchase and transfer of water from outside the SFPUC service area. As permitted by the SFPUC Agreement and state law, water may be purchased from outside of the RWS and conveyed to SFPUC and/or East Palo Alto through third-party transmission systems. Additional water could be secured either by SFPUC or East Palo Alto to augment its water supply. Such an arrangement would require both a contract with the third-party water supplier and an agreement between East Palo Alto and the SFPUC on the water quality, price, and operational terms.

In addition to acquiring transferred water individually, BAWSCA has statutory authority to assist the wholesale customers of the Hetch Hetchy regional water system in planning for and acquiring supplemental water supplies. BAWSCA continues to evaluate the feasibility of water transfers as part of its implementation of Phase II of its Long Term Reliable Water Supply Strategy.

Recently, the City has acquired 1,500,000 gpd and seeking other opportunities. The cost of acquiring additional water would be at the market rate at the time of acquisition.

Recycled Water Opportunities

The City does not supply recycled water, but is currently investigating recycled water options. All wastewater generated within the City is collected by the East Palo Alto Sanitation District (EPASD) and West Bay Sanitation District, conveyed outside the City limits, and treated by wastewater treatment facilities. These facilities provide treated wastewater that meets the regulatory requirements for recycled water as defined in California Code of Regulations, Title 22, Article 3 (Title 22). There is no infrastructure in place to transfer recycled water back into East Palo Alto.

The EPASD serves portions of the City and the City of Menlo Park through a collection system comprised of approximately 35 miles of gravity sewer mains ranging from 6-inch diameter to 24-inch diameter pipe. The EPASD discharges all collected wastewater to the City of Palo Alto's Regional Water Quality Control Plant (RWQCP). The EPASD has an annual average treatment capacity allotment from the RWQCP of 3.06 mgd (7.64% of the plants total treatment capacity). The RWQCP has a dry-weather capacity of 39 mgd and a wet-weather capacity of 80 mgd. The EPASD collects approximately 400 MG of wastewater from the City's service area annually.

Palo Alto operates a tertiary wastewater treatment plant and water reclamation facility and discharges most of its effluent to the San Francisco Bay. For effluent that is not discharged to the Bay, the RWQCP has a 4.5 mgd recycled water facility that filters and disinfects the effluent to meet the requirements for disinfected tertiary recycled water "unrestricted use" as defined in Title 22. The plant current production averages 0.6 mgd.

In June 2015, the California Department of Transportation began construction on the San Francisquito Creek Bridge Replacement Project, which involves the replacement of the Highway 101 bridge over San Francisquito Creek, as well as the West Bayshore Road and East Bayshore Road bridges over the San Francisquito creek. The project is being developed through a partnership with the San Francisquito Creek Joint Powers Authority (SFCJPA), a recently-established government agency consisting of the cities of East Palo Alto, Menlo Park, and Palo Alto, San Mateo County, and the Santa Clara Valley Water District. The City has been involved in the water planning for this project, including the installation of a four-inch pipeline to supply recycled water for construction from the Palo Alto RWQCP through its participation in the SFCJPA. Upon completion of the project, this recycled water pipeline will be turned over to the City. This could allow recycled water to be used for irrigation within the City's service area. Recycled water could offset the potable water demand for the Proposed Project or other projects.

In July 2019, the City of Palo Alto and Valley Water prepared a Northwest County Recycled Water Strategic Plan Report. The City of East Palo Alto was evaluated for the potential expansion of the recycled water system. It was estimated that the City of East Palo Alto could use 450 AFY of recycled water for non-potable uses. The concept of extending the recycled water system into the City of East Palo Alto, is considered low cost and a reasonable investment compared to other concept options in the report.

Emergency Ordinances

The City Council has previously adopted an emergency ordinance temporarily prohibiting new or expanded water service connections within the City's water service area during drought conditions. The emergency ordinance, if implemented, would allow staff time to study the current water shortage issue, to develop new water supply and water demand offset policies for the City Council to consider for adoption. Any application not approved prior to the implementation of the ordinance would not be approved. The ordinance would not apply to developments that have been approved by the City Council and the City has executed an agreement for reimbursement of water supply development costs with the project applicant(s).

8.0 DOCUMENTATION REVIEW

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