K. UTILITIES AND SERVICE SYSTEMS

Section 4.K, Utilities and Service Systems, addresses the potential effects of the Proposed Project on existing public utilities and service systems, including water supply, wastewater and stormwater, and solid waste collection and disposal. The Environmental Setting describes existing service providers, infrastructure, and system capacities. The Impacts and Mitigation Measures discussion addresses the changes in demand for utilities and service systems that would occur if the Proposed Project is implemented, and whether new or expanded services or infrastructure would be needed as a result. The Impacts discussion also considers whether the Proposed Project in combination with other reasonably foreseeable development projects would contribute to cumulative environmental impacts related to utilities and service systems.

The Proposed Project's potential impacts on water quality, including impacts on water quality from combined sewer overflows, are addressed in Section 4.O, Hydrology and Water Quality.

In the sections that follow, the discussions regarding the existing and future water supply and water demands in San Francisco are based on a number of sources. Information regarding the available water supply for the Proposed Project is based on both San Francisco's *2010 Urban Water Management Plan* (UWMP)[1] and the *2013 Water Availability Study*.[2] The UWMP presents projected water supplies while the *2013 Water Availability Study* provides updated water demands based on newer population growth projections for San Francisco. This information is supplemented with newer information that is publicly available on the San Francisco Public Utilities Commission's (SFPUC) web site to update the status of obtaining additional future groundwater and recycled water supplies. The SFPUC's *Fiscal Year 2014-15 Annual report* provides information regarding historic water use in San Francisco through Fiscal Year 2014-15.[3] Information available on the SFPUC and San Francisco Fire Department (SFFD) web sites provide a description of San Francisco's emergency firefighting system, referred to as the Auxiliary Water Supply System (AWSS).

Information regarding the capacity of the combined sewer system was obtained from the Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) permit for discharges from the Southeast Water Pollution Control Plant (SEWPCP), the North Point Wet Weather Facility, and all of the Bayside wet-weather facilities, including

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1 San Francisco Public Utilities Commission (SFPUC), *2010 Urban Water Management Plan for the City and County of San Francisco*, June 2011 (hereinafter referred to as "*2010 UWMP*).

2 SFPUC, *2013 Water Availability Study for the City and County of San Francisco,* May 2013 (hereinafter referred to as "*2013 Water Availability Study*").

3 SFPUC, Water Resources Division, *Annual Report, Fiscal Year 2014-15* (hereinafter referred to as "*FY 2014-15 Annual Report*"), p. 6.

combined sewer discharges (CSDs) to San Francisco Bay (referred to as the Bayside NPDES Permit, and discussed in Regulatory Framework in Section 4.O, Hydrology and Water Quality, pp. 4.O.29-4.O.30).[4] Various SFPUC engineering reports also supplement this information. Information on existing utilities at the project site and the Proposed Project's projected water usage and wastewater generation is based on engineering documents provided by the project sponsors.

ENVIRONMENTAL SETTING

WATER SUPPLY AND DEMAND

This subsection describes the available water supply in San Francisco and existing and projected water demands. In this context, the water supply includes all of the potable and recycled water sources discussed below. "Water demand" refers to the historic and projected amount of water used in San Francisco for all purposes, including municipal, industrial, commercial, and residential uses. The term "potable water" refers to water that is suitable for drinking and use in cooking. The term "recycled water" refers to wastewater that has been treated to remove solids and impurities and disinfected. Recycled water is not a potable water source and cannot be used as drinking water; however, it can be used for non-potable purposes (e.g., toilet and urinal flushing, landscape irrigation, and providing cooling to buildings), which reduces the demand for potable water.

Water Supply

The SFPUC's 2010 UWMP describes San Francisco's long-term strategy for ensuring that adequate water supplies are available to meet existing and future water demand over the 20-year planning horizon between 2015 and 2035.[5] The UWMP evaluates water deliveries and uses, water supply sources, efficient water uses, demand management measures, and water shortage contingency planning. In accordance with the Water Conservation Act of 2009, the SFPUC must also provide annual reports on their status of achieving the 20 percent reduction in water use mandated by the Act in its UWMP.

The UWMP was prepared in accordance with the requirements of the California Urban Water Management Planning Act (described Regulatory Framework, pp. 4.K.15) and considered growth in San Francisco based on estimates in the San Francisco Planning Department's 2009 Land Use

[4] San Francisco Bay Regional Water Quality Control Board (RWQCB), *Order No. R2-2013-0029, NPDES No. CA0037664, City and County of San Francisco, Southeast Water Pollution Control Plant, Northpoint Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System*. Adopted August 14, 2013 (hereinafter referred to as "*Bayside NPDES Permit*").

[5] SFPUC, *2010 UWMP*.

Allocation. In summer 2012, the Planning Department updated the Land Use Allocation and estimated that there will be 11,235 more dwelling units and 35,068 more jobs in 2035 than were estimated in the 2009 Land Use Allocation projections. The SFPUC subsequently prepared an updated water availability study in 2013 that considers the updated growth estimates.[6] The water supply analysis presented in this subsection relies on the *2013 Water Availability Study*.

Although San Francisco's updated 2015 UWMP was submitted to the Department of Water Resources by July 1, 2016 as required, the discussion below focuses on the 2010 UWMP and associated 2013 Water Availability Study because the 2010 UWMP was in effect when the Notice of Preparation for the Proposed Project was published. The 2015 UWMP does not include any substantial changes that would affect the availability of potable water for the Proposed Project.

Existing and Planned Future Water Supply

The SFPUC's regional water system serves approximately 2.6 million people in San Francisco, Santa Clara, Alameda, San Mateo, and Tuolumne counties, including all of the City and County of San Francisco. About 85 percent of the water delivered to SFPUC customers comes from Tuolumne River water stored in Hetch Hetchy Reservoir in the Sierra Nevada, and the remaining 15 percent comes from local sources. These local sources include runoff in the Alameda and Peninsula watersheds that is captured in reservoirs located in San Mateo, Alameda, and Santa Clara counties, as supplemented by local groundwater and recycled water. The regional water system conveys Tuolumne River water to the Bay Area and blends it with local sources before supplying its customers with approximately 265 million gallons of potable water per day (mgd).[7] The regional water system provides potable water to both wholesale customers located outside of San Francisco and retail customers via over 280 miles of pipelines, over 60 miles of tunnels, 11 reservoirs, 5 pump stations, and 2 water treatment plants outside of the San Francisco.[8]

The regional water system provides water to 27 wholesale customers in San Mateo, Alameda, and Santa Clara counties. Under the 2009 Water Supply Agreement among the SFPUC and wholesale customers, wholesale customers are assured 184 mgd of the regional water supply through 2018 during normal hydrologic years.[9] This represents approximately two-thirds of the total regional supply of 265 mgd.

The SFPUC also maintains a retail water system to distribute water within San Francisco, as well as to some suburban retail customers that are located outside the City, including the Town of

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6 SFPUC, *2013 Water Availability Study.*
7 SFPUC, *2013 Water Availability Study*, p. 2.
8 SFPUC, *2010 UWMP*, p. 7.
9 SFPUC, *2013 Water Availability Study*, p. 5.

Sunol, San Francisco International Airport, Lawrence Livermore National Laboratory, the Castlewood community in the City of Pleasanton, and Groveland Community Services District. These users are referred to as retail customers and include primarily municipal, industrial, commercial, and residential users. The discussion below focuses on the SFPUC's retail water system and water supply because potable water for the Proposed Project would be obtained from this supply.

In 2008, the SFPUC adopted the Water System Improvement Program (WSIP), a multi-billion-dollar capital program to improve and enhance the regional water system's water quality, seismic reliability, delivery reliability, and water supply. The SFPUC has implemented approximately 90 percent of the WSIP projects, [10] which include local water supply projects aimed at providing additional water supply sources to meet the future water needs of SFPUC retail customers during years with normal rainfall as well as during droughts. The WSIP water supply objectives for drought years are based on regional water system supplies forecasted for a conservative "design drought" of 8.5 years.[11]

Normal Year Retail Water Supplies

Retail customers within and outside of San Francisco are assured 81 mgd of supply from the regional water system through 2018 during years with normal amounts of rainfall, or about one-third of the regional water supply.[12] The SFPUC supplements the regional water system supplies with a small portion of local groundwater and recycled water to meet the full retail demand. In 2015, the available supply for all retail customers, including users within San Francisco and suburban customers, was 83.5 mgd.[13]

The SFPUC plans to augment local supplies for its retail customers by extracting up to 4 mgd of groundwater from new wells in the Westside Groundwater Basin, located on the west side of the City. This project, referred to as the San Francisco Groundwater Supply Project, is anticipated to provide an additional 2.8 mgd of potable water supply by early 2017, with the remaining 1.2 mgd to be implemented in a subsequent phase.[14] In addition, the SFPUC's planned Westside and Eastside Recycled Water projects would provide an estimated 4 mgd of recycled water, which would be used primarily for landscape irrigation, toilet flushing and industrial uses that do not require potable water. Implementation of these recycled water projects would therefore increase

[10] SFPUC, *WSIP Overview*. Available online at http://sfwater.org/index.aspx?page=115. Accessed December 29, 2015.
[11] SFPUC, *2010 UWMP*, p. 50-51.
[12] SFPUC, *2010 UWMP*, p. 24.
[13] SFPUC, *2013 Water Availability Study*, p. 13.
[14] SFPUC, *San Francisco Groundwater Supply*. Available online at http://sfwater.org/bids/projectDetail.aspx?prj_id=322. Accessed December 29, 2015.

the availability of potable water for retail customers. The Westside Recycled Water Project has an expected completion date of March 2019,[15] and the Eastside Recycled Water Project is in the planning stages, with construction not expected to start until January 2026.[16] With implementation of these projects, the total available regional retail supply of potable water is anticipated to increase from 83.5 to 90.3 mgd by 2030 during normal hydrologic years.[17]

Dry Year Retail Water Supplies

The water supply estimates discussed above are based on typical years with normal (i.e., average or above average) precipitation. These are referred to as "normal years." However, in any given year, the amount of water available to the SFPUC is constrained by hydrologic conditions affecting the amount of rainfall, existing physical facilities to convey the water, and institutional parameters that govern the amount of water available from the Tuolumne River. Due to these constraints, the SFPUC is more dependent on local reservoir storage during dry years to maximize the reliability of its water supplies, because local reservoirs store water from wet years.[18] Local water supply sources, including local groundwater and recycled water, are critical supplementary water sources during dry years.

During a prolonged drought, the water supplies from the regional water system are curtailed. The SFPUC has adopted a *Water Shortage Allocation Plan* that outlines procedures for adjusting the available water supply and allocating water from the regional system among its retail and wholesale customers when shortages would be less than 20 percent. As summarized in Table 4.K.1: Existing and Planned Future SFPUC Retail Water Supplies, the retail water supply would not be reduced during a single dry year, but it would be reduced in subsequent years of a prolonged drought.

Table 4.K.1: Existing and Planned Future SFPUC Retail Water Supplies (mgd)

Hydrologic Year Type	2015	2035
Normal Year	83.5	90.3
Single Dry Year	83.5	90.3
Years 2 and 3 of Multiple Dry Years	82.0	88.8

Source: SFPUC, *2013 Water Availability Study*, p. 13

[15] SFPUC, *San Francisco Westside Recycled Water Project*, Available online at http://sfwater.org/bids/projectDetail.aspx?prj_id=310. Accessed December 29, 2015.
[16] SFPUC, *San Francisco Eastside Recycled Water Project*, Available online at http://sfwater.org/bids/projectDetail.aspx?prj_id=311. Accessed December 29, 2015.
[17] SFPUC, *2013 Water Availability Study*, p. 13.
[18] SFPUC, *2010 UWMP*, p. 54.

Comparison of Retail Water Demand and Water Supply

The *2013 Water Availability Study* determined that the SFPUC could meet the future demands of its retail customers in normal years, single dry years, and dry year events that last longer than 1 year. As summarized in Table 4.K.2: Projected SFPUC Retail Water Demands – Normal and Single Dry Year, the study determined that in a normal year, the total retail demand for potable water would be 83.7 mgd in 2015 and 84.2 mgd by 2035.[19] This would result in a projected retail potable water shortage of 0.2 mgd in 2015 and a projected retail potable water surplus of 6.1 mgd in 2035. The study projected that the 2015 shortage would have occurred prior to full implementation of new local supplies under the WSIP, including groundwater and recycled water. The shortage represents less than a 0.25 percent shortfall, which the study concludes could be managed through voluntary conservation measures or, if necessary, rationing.

Table 4.K.2: Projected SFPUC Retail Water Demands – Normal and Single Dry Year (mgd)

Retail Customer	2015	2035
In-City (in San Francisco)	78.1	78.6
Suburban (outside San Francisco)	5.6	5.6
Total Retail Demand	**83.7**	**84.2**
Normal Year and Single Dry Year Water Supply	83.5	90.3
Projected Surplus (Shortage)	(0.2)	6.1

Note: As discussed in the text that follows, the projected shortfall in 2015 did not occur because retail water demands were less than projected in the *2013 Water Availability Study*.

Source: SFPUC, *2013 Water Availability Study*, pp. 17 and 20

As noted above, the SFPUC is required to curtail the retail water supply in accordance with the *Water Shortage Allocation Plan* in the event of a multi-year drought. This curtailment was projected to reduce total retail potable water supplies to 82.0 mgd in 2015 and 88.8 mgd in 2035. As summarized in Table 4.K.3: Projected SFPUC Retail Water Demand – Multiple Dry Year, this would result in a projected retail potable water shortage of 1.7 mgd in 2015 and 4.6 mgd retail potable water surplus in 2035. The projected shortage in 2015 represents less than a 2 percent shortfall, which the UWMP concludes could also be managed through voluntary conservation measures or, if necessary, rationing.

[19] SFPUC, *2013 Water Availability Study*, p. 17.

Table 4.K.3: Projected SFPUC Retail Water Demand – Multiple Dry Year (mgd)

Retail Customer	2015	2035
In-City (in San Francisco)	78.1	78.6
Suburban (outside San Francisco)	5.6	5.6
Total Retail Demand	**83.7**	**84.2**
Multiple Dry Year Water Supply	82.0	88.8
Projected Surplus (Shortage)	(1.7)	4.6

Note: As discussed in the text that follows, the projected shortfall in 2015 did not occur because retail water demands were less than projected in the *2013 Water Availability Study*.

Source: SFPUC, *2013 Water Availability Study*, pp. 17 and 20

Note that the shortfall anticipated in 2015 did not occur, despite the multi-year drought, because, based on the SFPUC's *Fiscal Year 2014-15 Annual Report*, the total retail water use in 2015 was 69 mgd, or 13 mgd less than the projected in-City retail water demand identified in the *2013 Water Availability Study*.[20]

Water Conservation in San Francisco

Despite population growth, San Francisco's total water demand has consistently lessened over the last 15 years, largely due to comprehensive water conservation efforts and public education programs implemented by the City. San Francisco's gross per capita retail water use (including water use for all categories, including commercial, industrial, municipal, and residential) has decreased from 102 gallons per day in Fiscal Year 2005-06 to 77 gallons per day in Fiscal Year 2014-15, a reduction of almost 25 percent.[21] Per capita residential use decreased from 59 to 44 gallons per day during the same period, a reduction of 25 percent. Since Fiscal Year 2013-14, residential use decreased from 49 to 44 gallons per day. This 10 percent reduction in residential water use exceeds the 8 percent goal established for San Francisco by the State Water Resources Control Board (SWRCB) in accordance with the Governor's emergency drought regulations (see Regulatory Framework, pp. 4.K.16-4.K.17).

San Francisco comprehensive water conservation program helps sustain a continued reduction in water use. The program is open to residents, municipal facilities, parks, hotels, universities, and all other retail customers. Its core services include indoor and outdoor Water-Wise Evaluations, incentives for replacement of old plumbing fixtures, free water-efficient plumbing devices,

[20] SFPUC, *FY 2014-15 Annual Report*, p. 6.
[21] Ibid.

landscape efficiency programs, tools to monitor water use, and public outreach such as free gardening classes and presentations to schools and stakeholder organizations.

In June 2014, the SFPUC launched a multilingual public education campaign to capture public attention and present everyday water conservation tips and information about the drought. In 2015, the campaign continued with new artwork and messages communicated through a combination of television, newspaper, billboard, bus, commuter transit station, and social media advertisements. The campaign encouraged individuals to adjust their water use practices and pursue water-efficient plumbing fixture upgrades. It also advised individuals to visit the SFPUC's water conservation web site to learn more about conservation services offered. Shortly after launching this campaign, the web site traffic increased by almost 25 percent. The SFPUC extended the campaign to the wholesale service area.

The SFPUC estimates that activities implemented through the water conservation program in Fiscal Year 2014-15 could save 773 million gallons of water over the next 30 years.[22]

In-City Water Distribution Systems

San Francisco maintains two primary water systems within the City and County limits that provide potable and firefighting water to the City, referred to as in-City water distribution systems. One is a low-pressure system that provides potable water from the regional water system for domestic and industrial uses and for firefighting. The potable water distributed in this system is part of the retail water supply described above. The other system is a high-pressure AWSS that provides a supplemental source of non-potable fresh water for firefighting purposes.

Both of these systems are described below. The SFPUC has plans to construct a recycled (reclaimed) water system to provide water for non-potable purposes on the east side of San Francisco, referred to as the Eastside Recycled Water Project; this system is in the planning stages.[23]

Low-Pressure Water System

Domestic potable water is delivered to in-City retail customers via the in-City low-pressure water distribution system, which includes over 1,250 miles of pipeline, 12 reservoirs, 9 storage tanks, and 17 pump stations, all located within the San Francisco city limits.[24] The SFPUC owns, operates, and maintains this system. Potable water is delivered to the project site via an 8-inch

[22] SFPUC, *FY 2014-15 Annual Report*, p. 6.
[23] SFPUC, *San Francisco Eastside Recycled Water Project.* Available online at http://sfwater.org/bids/projectDetail.aspx?prj_id=311. Accessed on December 29, 2016.
[24] SFPUC, *2010 UWMP*, p. 7.

main beneath Illinois Street, a 12-inch main beneath 20th Street, and an 8-inch main beneath 22nd Street.[25] The water demand from existing temporary uses at the project site, including special event venues, artists' studios, self-storage facilities, warehouses, automobile storage lots, a parking lot, a soil recycling yard, and office spaces, is 0.0004 mgd.[26]

This system also provides low-pressure water to the site for firefighting purposes. Two fire hydrants were tested in November 2013. One was located on Illinois Street at 22nd Street and one was near the eastern end of 20th Street. The observed flow from the opened hydrants was 900 gallons per minute (gpm) with an 8 pound per square inch (psi) drop in pressure and 1,050 gpm with a 6 psi drop in pressure, respectively. The calculated fire flow rates are 2,029 gpm and 3,195 gpm, respectively, when the minimum residual pressure is allowed to drop to 20 psi.

High-Pressure Auxiliary Water Supply System

The AWSS is San Francisco's emergency firefighting water system that provides high-pressure fresh water and San Francisco Bay water for firefighting in the City. This system supplements the in-City low-pressure water distribution system described above.[27] Citywide, the AWSS includes approximately 200 cisterns, 2 pump stations, 2 storage tanks, 1 reservoir, and approximately 135 miles of pipes. Five fire boat manifolds and wharf hydrants along The Embarcadero also provide connections to San Francisco Bay as a supplemental water source for firefighting.[28] The AWSS also uses portable water systems that consist of large-diameter hoses, pressure-reducing valves, and portable hydrants.[29] The portable systems can be used to draft water from alternative water sources and transport water over long distances when piped water is not available from the in-City low-pressure water distribution system or the existing AWSS facilities.

Constructed following the devastation of the 1906 San Francisco earthquake and fire, the AWSS is over 100 years old, and the SFPUC is currently making improvements to the system as part of Earthquake Safety and Emergency Response bonds passed in 2010 and 2014.[30] The system is

[25] BKF, *Pier 70 Mixed-Use District Project Low Pressure Water System Master Plan*, February 5, 2016 (hereinafter referred to as "*Low Pressure Water System Master Plan*"), Figure 3.1.
[26] BKF, *Pier 70 – Water Demand Memorandum*. April 28, 2016 (hereinafter referred to as "*Pier 70 Water Demand Memorandum*").
[27] SFPUC, *Fact Sheet, Emergency Firefighting Water System Upgrades*, Summer 2012.
[28] San Francisco Fire Department, *Water Supply Systems.* Available online at http://sf-fire.org/water-supply-systems. Accessed December 31, 2015.
[29] AECOM/AGS, *CS-199 Planning Support Services for Auxiliary Water Supply System (AWSS), Project Report*, February 2014
[30] AECOM/WRE, *Emergency Firefighting Water System Earthquake Safety and Emergency Response 2014 Bond Spending Plan Summary*, November 2015, p. 1.

being improved to reliably provide water to supply the probable fire demands based on a hypothetical magnitude 7.8 earthquake on the San Andreas Fault. Once all of the improvements are constructed, each area in San Francisco will have a minimum of 50 percent reliable water supply for this earthquake scenario. Overall, the average Citywide water supply will be a minimum of 90 percent reliable.

In the project vicinity, the AWSS includes a north-south-running 14-inch main under Third Street.[31] As part of Earthquake Safety and Emergency Response bonds, improvements are planned in areas to the south of the project site and at Islais Creek, and also to the west of the project site; however, no improvements are planned in the immediate vicinity of the project site.

Recycled Water System

The project site is located within the City's designated recycled water use area, defined under Article 22 of the San Francisco Public Works Code (see Regulatory Framework, p. 4.K.21). Ultimately, the SFPUC Eastside Recycled Water Project would provide an estimated 2 mgd of recycled water[32] to the bayside (east side) of San Francisco, which includes the project site. The recycled water would be provided for non-potable uses such as irrigation and toilet flushing. However, the Eastside Recycled Water Project is in the planning stages, with construction expected to be completed by the end of 2029.[33]

WASTEWATER AND STORMWATER

Combined Sewer System

The SFPUC maintains and operates a combined sewer system that serves most of San Francisco, including the project site. (For the purposes of this section, the description of the combined sewer system focuses on existing flows to the system and the capacity of the system; see Section 4.O, Hydrology and Water Quality, for a more detailed description of the combined sewer system.) This system collects stormwater runoff and wastewater flows in the same network of pipes and consists of two major drainage basins: the Bayside and Westside Drainage basins, shown on

[31] BKF, *Potential Supplemental Fire Water Description*, March 5, 2015, p. 1

[32] Recycled water is highly treated wastewater that has been purified through multiple levels of treatment to remove pollutants and contaminants so that the water can be used for a variety of applications. The California Department of Public Health has established the treatment standards and regulations regarding recycled water use. Treatment typically consists of filtration to remove solids, some bacteria, and other pollutants. Disinfection destroys any remaining bacteria and viruses, using chemicals (such as chlorine) or non-chemical methods like ultraviolet light. Recycled water can be used for a wide variety of non-potable uses such as irrigation, toilet flushing, cooling, industrial processing, and soil compaction and dust control.

[33] SFPUC, *San Francisco Eastside Recycled Water Project*. Available online at http://sfwater.org/bids/projectDetail.aspx?prj_id=311. Accessed December 29, 2015.

Figure 4.O.1: Bayside Drainage Basin Urban Watersheds, in Section 4.O, Hydrology and Water Quality, pp. 4.O.29-4.O.30. The project site is located in the Bayside Drainage Basin, which conveys wastewater and stormwater to the SEWPCP for treatment. The SEWPCP is located on Phelps Street, south of Islais Creek on the eastern waterfront.

The Bayside Drainage Basin includes a system of 653 miles of pipe to convey stormwater and wastewater flows to the SEWPCP, which has a dry-weather capacity of 84.5 mgd. During dry weather (generally May through September), wastewater flows consist mainly of industrial wastewater and sanitary sewage[34] (collectively referred to as wastewater). All dry-weather flows receive secondary treatment before being discharged to San Francisco Bay through the Pier 80 outfall, which has a capacity of 110 mgd.[35] The annual average wastewater flow to the SEWPCP during dry weather is 60 mgd.[36] Therefore, the existing flows are about 71 percent of the treatment capacity, and all dry-weather wastewater flow is treated to a secondary level at the SEWPCP.[37]

During wet weather (generally October through April), up to 250 mgd of wet-weather flows receive treatment at the SEWPCP. The treated wet-weather discharges are discharged to Lower San Francisco Bay through the Pier 80 outfall or to Islais Creek through the Quint Street outfall. Up to an additional 150 mgd of wet-weather flows receive treatment at the North Point Wet Weather Facility, located on the northern side of the City, which operates only during wet weather. Treated effluent from this facility is discharged through four deep-water outfalls, approximately 800 feet from San Francisco Bay shoreline. Two of them terminate at the end of Pier 33, and the other two terminate at the end of Pier 35 on the northeastern San Francisco Bay shore.[38]

The combined sewer system includes storage and transport boxes that, during wet weather, retain the combined stormwater and sewage flows that exceed the capacities of the SEWPCP and the North Point Wet Weather Facility for later treatment. When rainfall intensity results in combined flows that exceed the total capacity of the SEWPCP, the North Point Wet Weather Facility, and the 125-million-gallon capacity of the storage and transport structures, the excess flows are discharged through 29 CSD structures located along the City's bayside waterfront from Marina Green to Candlestick Point. All discharges from the combined sewer system to San Francisco Bay, through either the outfalls or the CSD structures, are operated in compliance with the

[34] Sewage consists of wastewater from toilet or urinal flushing that contains human waste and other wastewater from sanitary conveniences of households and businesses.
[35] RWQCB, *Bayside NPDES Permit*.
[36] SFPUC, *San Francisco's Wastewater Treatment Facilities*, June 2014.
[37] Secondary treatment at the SEWPCP involves aeration with oxygen to enhance the biological breakdown of the combined flows, followed by secondary clarification for further solids removal.
[38] SFPUC, *San Francisco's Wastewater Treatment Facilities*, June 2014.

Bayside NPDES Permit, which regulates discharges from the SEWPCP, the North Point Wet Weather Facility, and all of the Bayside wet-weather facilities, including CSDs, to San Francisco Bay (see Regulatory Framework, in Section 4.O, Hydrology and Water Quality, pp. 4.O.29-4.O.30, for further discussion of the permit).

Stormwater and Wastewater Management at the Project Site

The Proposed Project is entirely located within the 20th Street sub-basin of the Islais Creek watershed, which is part of the City's combined sewer system. This sub-basin is bounded by Illinois Street on the west, 19th Street and the San Francisco Bay shoreline on the north, 22nd Street and the former Potrero Power Plant on the south, and San Francisco Bay on the east. The BAE Systems ship repair area to the north of 20th Street, 20th Street Historic Core site, and the project site (including both the 28-Acre Site and the Illinois Parcels) comprise the total area of this sub-basin. In this sub-basin, both stormwater and wastewater are conveyed to a 54-inch storage and detention pipe along the eastern portion of the site and a 42-inch sewer line beneath 20th Street that are owned by the SFPUC. These sewer lines convey flows to the 20th Street pump station near the northeast corner of the project site. The 20th Street pump station pumps stormwater and wastewater flows through a 10-inch-diameter force main located beneath 20th Street to a 27-inch-diameter gravity sewer main under Illinois Street.[39] From there, the combined stormwater and wastewater flows are conveyed through gravity sewers to the SEWPCP for treatment prior to discharge to San Francisco Bay in accordance with the Bayside NPDES Permit.

When the capacity of the 20th Street pump station is exceeded during wet weather, a portion of the wet-weather flows are stored in the 42- and 54-inch pipes. The 20th and 22nd streets CSD structures discharge flows from the 20th Street sub-basin to the Central Basin of San Francisco Bay when the wet-weather capacities of the 20th Street pump station and associated pipes are exceeded.[40] No dry-weather flows are discharged through these CSD structures.

The pump station was built in 1993. Its dry-weather design capacity is 3.0 mgd.[41] However, volumetric testing conducted by the SFPUC in July 2013 indicates that the pump station's dry-weather capacity is about 2.65 mgd with both pumps running.[42] Based on 24 hours of flow monitoring conducted in August 2013 by the SFPUC during a period of no rainfall, the average dry-weather wastewater flow rate to the pump station was 0.75 mgd at the time of the test and the

[39] A force main is a pipe that conveys liquid by pumping rather than by gravity flow.
[40] RWQCB, *Bayside NPDES Permit*, p. 24.
[41] SFPUC, *Bayside Drainage Basin Urban Watershed Characterization, Final Draft Technical Memorandum*, July 2013, p. 3-21.
[42] SFPUC, 20th Street Pump Station Volumetric Discharge Test and Contributing Flows, Technical Memorandum, August 30, 2013 (hereinafter referred to as "20th Street Pump Station Technical Memorandum"), p. 5.

maximum measured flow rate was 1.5 mgd.[43] Based on this, the SFPUC estimated that the pump station has a remaining dry-weather capacity of about 1.2 mgd.

Port Stormwater Management

The Port of San Francisco (Port) manages approximately 7.5 miles of San Francisco's waterfront from Hyde Street Pier on the north to India Basin on the south.[44] The vast majority of this area is served by separate storm drain systems operated by the Port that drain directly to San Francisco Bay. In other areas of the waterfront, there is no stormdrain system, and stormwater infiltrates into the ground or runs off to San Francisco Bay. All of these areas are classified as municipal separate storm sewer systems (or MS4s) by the SWRCB. Accordingly, stormwater discharges from these areas are regulated under the SWRCB Water Quality Order No. 2013-0001-DWQ, NPDES General Permit for Waste Discharge Requirements (WDRs) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s). The Port does not currently maintain a separate storm drain system at the project site.

SOLID WASTE

San Francisco's Solid Waste Generation and Disposition

The subsection discusses San Francisco's generation and reduction of solid waste streams, solid waste service, and landfill usage. San Francisco uses a three-cart collection program: residents and businesses sort solid waste into recyclables, compostable items, such as food scraps and yard trimmings, and garbage that cannot be recycled or composted.

Recology provides solid waste collection, recycling, and disposal services for residential and commercial garbage, recycling, and composting in San Francisco through its subsidiaries: San Francisco Recycling and Disposal, Golden Gate Disposal and Recycling, and Sunset Scavenger. All materials are taken to the San Francisco Solid Waste Transfer and Recycling Center in the southeast corner of San Francisco. There, the three waste streams are sorted and bundled for transport to the composting and recycling facilities and landfills.

Recyclable materials (e.g., aluminum, glass, and paper) are sent to Recology's Pier 96 facility (Recycle Central), located on San Francisco's Southern waterfront, where they are separated into commodities and sold to manufacturers that turn the materials into new products.

San Francisco has created the first large-scale urban program for collection of compostable materials in the country. Residents and restaurants and other businesses send food scraps and other compostable material to Recology's Jepson-Prairie composting facility, located in Solano

[43] SFPUC, 20th Street Pump Station Technical Memorandum, p. 3.
[44] Port of San Francisco, *Storm Water Management Plan 2003-2004*, December 2003.

County. Food scraps, plant trimmings, soiled paper, and other compostables are turned into a nutrient-rich soil amendment, or compost.

In September 2015, the City approved an Agreement with Recology, Inc., for the transport and disposal of the City's municipal solid waste at the Recology Hay Road Landfill in Solano County. The City began disposing its municipal solid waste at this landfill in January 2016, and that practice is anticipated to continue for approximately nine years, with an option to renew the Agreement thereafter for an additional six years. San Francisco had a goal of 75 percent solid waste diversion by 2010, which it exceeded at 80 percent diversion, and has a goal of 100 percent solid waste diversion or "zero waste" to landfill or incineration by 2020. San Francisco Ordinance No. 27-06 requires mixed construction and demolition debris be transported by a registered transporter and taken to a registered facility that must recover for reuse or recycling and divert from landfill at least 65 percent of all received construction and demolition debris. The San Francisco Green Building Code also requires certain projects to submit a Recovery Plan to the Department of the Environment demonstrating recovery or diversion of at least 75 percent of all demolition debris. San Francisco's Mandatory Recycling and Composting Ordinance No. 100-09 requires all properties and everyone in the City to separate their recyclables, compostables, and landfill trash.

Project Site Solid Waste Generation and Disposition

The existing land uses at the project site are estimated to produce approximately 400 tons per year of solid waste bound for the Recology Hay Road Landfill, 14 tons per year of recyclables, 1 ton per year of greenwaste, and less than 1 ton per year of wood waste as pallets.[45]

San Francisco's Solid Waste Reduction Efforts

Under the California Integrated Waste Management Act of 1989 (see Regulatory Framework, p. 4.K.18-4.K.19), San Francisco was required to adopt an integrated waste management plan, implement a program to reduce the amount of waste disposed, and undergo a periodic review of its waste diversion performance by the former California Integrated Waste Management Board. (The State agency called CalRecycle has since taken over the functions of the former California Integrated Waste Management Board.) The City was required to reduce the amount of waste sent to landfill by 50 percent by 2000. The City met the 50 percent reduction goal in 2000 by recycling, composting, reuse, and other efforts, and achieved 70 percent reduction in 2006.

[45] A history of annual rates for San Francisco can be viewed at CalRecycle, "Jurisdiction Diversion/Disposal Rate Summary (2007 - Current)" (web page, search for "San Francisco"). Available online at http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx. Accessed January 9, 2016.

Under the Solid Waste Disposal Measurement Act, Senate Bill 1016 (2008), the waste diversion rate measurement system was replaced by a simpler approach that sets a 50 percent Equivalent Per Capita Disposal Target (resident or employee) for the State and each jurisdiction. This target rate is updated using the California Department of Finance's yearly population estimates and employment data from the State's Employment Development Department. The target disposal rate for San Francisco residents and employees was 6.6 pounds/resident/day and 10.6 pounds/employee/day, respectively. Both of these targeted disposal rates have been met.[46] As of 2014 (the latest year with available data), San Francisco residents generated about 3.3 pounds/resident/day for disposal, and San Francisco businesses generated about 4.4 pounds/employee/day for disposal.[47]

REGULATORY FRAMEWORK

STATE

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (California Water Code Sections 10610 through 10656). The act has been modified over the years in response to factors such as the State's water shortages and droughts. A significant amendment was made in 2009, after the drought of 2007-2009, and as a result of the governor's call for a Statewide 20 percent reduction in urban water use by the year 2020 (see "Water Conservation Act of 2009," below).

The Urban Water Management Planning Act requires an urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, to prepare a UWMP to support long-term water resource planning and ensure the reliability of its water resources over a 20-year planning horizon. The UWMP must consider availability of water resources during normal, dry, and multiple dry years. The act describes the contents of the UWMP and specifies how urban water suppliers should adopt and implement the plans. In accordance with the Water Conservation Act of 2009, urban water suppliers must also establish water use targets for 2015 and 2020 that would help achieve a Statewide savings of 20 percent by 2020. The Urban Water Management Planning Act requires that UWMPs be updated every five years, in years ending with "0" or "5."

[46] Ibid.

[47] CalRecycle, "Jurisdiction Diversion/Disposal Rate Detail" (web page) (for San Francisco 2014 data), available at http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionDetail.aspx?JurisdictionID=438&Year=2014. Accessed January 9, 2016.

Water Conservation Act of 2009

The Water Conservation Act of 2009, also known as Senate Bill X7-7, requires the State to set a goal of reducing urban water use by 20 percent by the year 2020. In turn, each retail urban water supplier must determine baseline water use during their baseline period and must also specify water use targets for the years 2015 and 2020 in order to help the State achieve the reduction. Water agencies are required to demonstrate compliance with their established water use target for the year 2015 in their 2015 UWMPs. To calculate these targets, suppliers use two baselines. Water agencies that do not supplement their water supply with at least 10 percent recycled water, such as the SFPUC, must calculate a 10-year baseline based on water use over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010. All water agencies must also calculate the five-year baseline, referred to as the target confirmation, over a continuous five-year period that ends no earlier than December 31, 2007, and no later than December 31, 2010. Average water use is calculated as gallons per capita per day, i.e., the amount of water used per person per day.

Emergency Drought Regulations

On January 17, 2014, Governor Edmund G. Brown declared a State of Emergency in California due to severe drought conditions. His Executive Order B-29-15, issued on April 1, 2015, required the SWRCB to adopt an Emergency Regulation imposing a mandatory Statewide urban potable water use reduction of 25 percent compared to 2013.[48] The emergency regulation is contained in Title 23 of the California Code of Regulations, Division 3, Chapter 2, Sections 863 through 866. These mandatory requirements took effect starting June 2015 and in accordance with Executive Order B-36-15 remain in effect through October 31, 2016.[49]

To reach the Statewide 25 percent reduction mandate, the emergency regulation assigns each urban water supplier a conservation standard that ranges between 4 and 36 percent based on their residential gallons-per-capita-per-day water use for the months of July to September 2014.[50] San Francisco's per capita residential water use at that time was about 49 mgd,[51] among the lowest in the State and below the Statewide per capita goal of 55 gallons per day. Based on this water usage, San Francisco is required to achieve an 8 percent reduction in water use relative to use in 2013 to help achieve the Statewide reduction of 25 percent.

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[48] State of California, Executive Department, *Executive Order B-29-15*, April 1, 2015.
[49] State Water Resources Control Board (SWRCB), *Resolution No. 2016-0007, To Adopt and Emergency Regulation for Statewide Urban Water Conservation*, February 2, 2016.
[50] State Water Resources Control Board, *Urban Water Supplier Conservation Standard for Extended Emergency Regulation Rulemaking – 2016. Supplier Conservation Standards – Effective March 1, 2016.* April 7, 2015.
[51] SFPUC, *FY 2014-15 Annual Report*, p. 6.

Governor Brown issued Executive Order B-37-16 (Making Water Conservation a Way of Life) on May 9, 2016. This executive order calls for maintaining the 25 percent reduction in water use and implementing the following water use efficiency improvements:

- Developing new urban water use targets that generate more water conservation than existing requirements;
- Reducing water loss; and
- Improving urban Water Shortage Contingency Plans and reporting requirements.

The executive order also includes new requirements for agricultural water suppliers.

In accordance with Executive Order B-37-16, the Water Shortage Contingency Plans for urban water suppliers must demonstrate adequate actions to respond to droughts lasting five years or more, as well as more frequent and severe periods of drought. This executive order also requires urban water suppliers to issue monthly reports on their water usage, amount of conservation achieved, and any enforcement efforts.

On May 18, 2016, the SWRCB adopted a Statewide water conservation approach that allows urban water suppliers to replace their prior State-assigned percentage target reduction with a localized "stress test" approach based on showing whether they have at least a three-year water supply under extended drought conditions.[52] This revised emergency regulation was promulgated after water supply conditions improved significantly in most of the State and recognizes that urban water suppliers are now better positioned to respond to drought impacts following their conservation efforts throughout the recent drought. The revised regulation requires individual urban water suppliers to self-certify the level of available water supplies they have assuming three additional dry years. Wholesale water agencies were also required to include documentation about how regional supplies would fare under three additional dry years. Both urban water suppliers and wholesale suppliers are required to report the underlying basis for their assertions, and urban water suppliers are required to continue reporting their conservation levels.

Water Supply Assessment – Senate Bill 610

Senate Bill 610 (Water Code Sections 10910 through 10915), effective January 1, 2002, requires cities and counties to confirm that sufficient water supply sources are available before specified large development projects are approved. Confirmation is provided in a Water Supply Assessment that must be prepared for projects that include (1) the equivalent demand of 500 residential units; (2) a shopping center or business establishment that employs more than 1,000 persons or has a floor space of more than 500,000 square feet; or (3) a commercial office building

[52] State Water Resources Control Board, Fact Sheet, State Water Resources Control Board Posts 36-Month Urban Water Supply Stress Test Submissions, August 15, 2016.

that employs more than 1,000 persons or has a floor space of more than 250,000 square feet. The Water Supply Assessment for a proposed project must be included in that project's California Environmental Quality Act (CEQA) document. The Pier 70 Mixed Use District Project requires a Water Supply Assessment because it meets all of these criteria.

Water Supply Verification

California Government Code Section 66473.7 requires that a condition be included in any tentative subdivision map or development agreement for a residential subdivision of 500 or more units mandating that a "sufficient water supply" be available to serve the subdivision in addition to other existing and planned future water uses. The water provider must submit to the city or county a water supply verification evaluating whether such a sufficient water supply exists, based on substantial evidence. If verification of a sufficient water supply cannot be provided, a final subdivision map cannot be issued for the subdivision, and the subdivision cannot be built.

Wholesale Regional Water System Security

The SFPUC regional water supply system provides potable drinking water to the SFPUC's wholesale and retail water customers and is also used to generate clean and renewable hydroelectric power. California Water Code Sections 73500 through 73514 (the Wholesale Regional Water System Security and Reliability Act) specify requirements related to the security and reliability of San Francisco's regional water system. Section 73504(b) requires the SFPUC to assign higher priority to delivery of water to the Bay Area than to the generation of electric power.

National Pollutant Discharge Elimination System Permits

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to issue and enforce NPDES permits. In addition, the SWRCB develops water quality standards and performs other functions to protect California's waters. The Regional Water Quality Control Boards carry out the SWRCB regulations and standards and also issue and enforce permits. The NPDES permit applicable to the Proposed Project that pertains to utilities and service systems is the Bayside NPDES Permit that governs operation of the City's combined sewer system (see Regulatory Framework in Section 4.O, Hydrology and Water Quality, pp. 4.O.29-4.O.30, for further discussion of the permit).

California Integrated Waste Management Act – Assembly Bill 939

Among the California statutes regulating solid waste, the California Integrated Waste Management Act (CIWMA), Assembly Bill 939 (1989), was landmark legislation. The CIWMA mandated that source reduction be the highest priority waste management strategy, followed by

recycling and composting, and environmentally safe transportation and land disposal. The law requires that each county prepare an Integrated Waste Management Plan, replacing the earlier County Solid Waste Management Plan. The CIWMA and later revisions required that counties, cities, and regional agencies prepare a source reduction and recycling element in its plan for diversion of 25 percent of all solid waste from landfills or transformation facilities by 1995, and 50 percent by 2000, using a 1989 baseline.

Solid Waste Disposal Measurement Act – Senate Bill 1016

The Solid Waste Disposal Measurement Act, Senate Bill 1016 (2008), changed the metric for evaluating success in California's solid waste management. The act maintained the 50 percent diversion requirement set forth under the CIWMA, but addressed the problem that calculating the diversion rate was a complex, time-consuming, and difficult process. Instead, the act provided for a 50 percent Equivalent Per Capita Disposal Target. This per capita disposal target is the amount of disposal a jurisdiction would have had during the base period, if it had been exactly at a 50 percent diversion rate. The 50 percent Equivalent Per Capita Disposal Target is calculated by dividing the average of 2003-2006 per capita generation in half. Each jurisdiction has a specific 50 percent Equivalent Per Capita Disposal Target that cannot be compared to other jurisdictions. In addition, for jurisdictions that already met the 50 percent diversion rate at that time, such as San Francisco, annual waste generation studies are no longer required, allowing more resources to be focused on the development or maintenance of waste reduction strategies.

LOCAL

San Francisco Non-potable Water Program

In September 2012, the City adopted the Onsite Water Reuse for Commercial, Multi-family, and Mixed Use Development Ordinance. Commonly known as the Non-potable Water Ordinance, it added Article 12C to the San Francisco Health Code, allowing for the collection, treatment, and use of alternate water sources for non-potable applications. In October 2013, the City amended the ordinance to allow district-scale water systems, defined as systems consisting of two or more buildings sharing non-potable water. The City also amended the ordinance in July 2015, requiring new construction to use alternative water supplies for non-potable use. The requirements of this program stipulate that:

- All new buildings of 250,000 square feet or more of gross floor area located within the boundaries of San Francisco's designated recycled water use area be constructed, operated, and maintained using available alternate water sources for toilet and urinal flushing and irrigation;
- All new buildings in San Francisco of 40,000 square feet or more of gross floor area prepare water budget calculations; and

- Subdivision approval requirements specify compliance with Article 12C of the San Francisco Health Code.

(See "San Francisco Non-potable Water Program" in Section 4.O, Hydrology and Water Quality, pp. 4.O.39-4.O-40, for more information.)

The City is considering adoption of an ordinance that would revise the definition of large and small developments. If adopted, the ordinance would change to definitions for development projects as follows:

- Large developments: new single buildings of 250,000 square feet or more of gross floor area and multiple buildings constructed in accordance with a phased plan or approval with a total gross floor area of 250,000 square feet or more.
- Small developments: single buildings of 40,000 square feet or more of gross floor area and multiple buildings constructed in accordance with a phased plan or approval with a total gross floor area of 40,000 square feet or more.

If adopted, all developments within the Pier 70 Special Use District (SUD) would need to comply with the non-potable water ordinance because they would be part of a subdivision approval comprising more than 250,000 square feet of gross floor area. The analysis of water supply impacts below assumes that all developments within the SUD would be required to comply.

Potential alternate water sources that could be used to meet the requirements of this program include greywater (water from bathroom sinks, showers, clothes washing machines, and similar sources that do not contain food waste or human excrement), rainwater, and groundwater from foundation dewatering. Potable water has historically been used to serve most or all water needs within commercial, industrial, and residential buildings and for landscaping. Use of these non-potable water sources for non-potable uses such as toilet and urinal flushing, building cooling, and landscaping helps reduce the quantity of potable water needed for building operation.

The Non-potable Water Program received 13 water budget applications in Fiscal Year 2014-15 to install on-site water systems.[53] Twelve of the projects are individual building-scale projects, and one is a district-scale project (a district-scale project is one that consists of two or more buildings sharing non-potable water). The 13 new projects propose to offset the use of approximately 16 million gallons per year of potable water. Combined with 13 projects from Fiscal Year 2012-13 and 20 projects from Fiscal Year 2013-14, the estimated total offset is 24 million gallons of potable water each year, or an average of 0.07 mgd.

[53] SFPUC, *FY 2014-15 Annual Report*, p. 13.

San Francisco Recycled Water Use Ordinance

Article 22 of the San Francisco Public Works Code, referred to as the Recycled Water Use Ordinance, requires property owners located within designated recycled water use areas to install recycled water systems in new construction, modified, or remodel projects. This applies to following types of developments:

- New construction or major alterations to a building totaling 40,000 square feet or more;
- All subdivisions; and
- New and existing irrigated areas of 10,000 square feet or more.

The recycled water use area comprises the majority of the City's bayside waterfront and some inland areas, as well as Treasure Island. The goal of the ordinance is to maximize the use of recycled water, and buildings and facilities subject to this ordinance must use recycled water for all uses authorized by the State once a source of recycled water is available. Commonly approved uses include irrigation, cooling, and/or toilet and urinal flushing.

In a mixed-use residential building with a recycled water system, any restaurant or other retail food-handling establishment must be supplied by a separate potable water system to ensure public health and safety.

As discussed under "Recycled Water System," p. 4.K.10, the SFPUC Eastside Recycled Water Project would ultimately provide an estimated 2 mgd of tertiary recycled water on the bayside of San Francisco. However, construction of the Eastside Recycled Water Project would not be completed until the end of 2029.[54] While the Proposed Project is subject to the Recycled Water Use Ordinance, there is currently no available source of recycled water.

San Francisco Drought Response Requirements

The SFPUC implemented a Mandatory Irrigation Allocation Program in 2015 in accordance with SFPUC Resolution 15-0119.[55] This program requires all potable irrigation customers to reduce their irrigation water use by 25 percent, effective July 1, 2015. The SFPUC has provided irrigation account holders with their water use allocations using 2013 baseline water use data. If potable water use exceeds the allocation, an Excess Use Charge of 100 percent of the applicable water is charged for each unit of water exceeding the allocation.

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[54] SFPUC, *San Francisco Eastside Recycled Water Project*. Available online at http://sfwater.org/bids/projectDetail.aspx?prj_id=311. Accessed December 29, 2015.

[55] City and County of San Francisco, Public Utilities Commission, *Resolution No. 15-0119*, May 26, 2015.

Mayor Edwin M. Lee also issued Executive Directive 14-01 on February 10, 2014, requesting water customers to reduce overall water use by 10 percent relative to 2013, effective June 1, 2015.[56] This directive also requires all City departments to develop a Water Conservation Plan and take steps to achieve a 10 percent reduction in water use. City department heads have been asked to report innovative conservation strategies to the SFPUC for the purposes of sharing best practices with other departments.

San Francisco Water Efficient Irrigation Ordinance

The San Francisco Water Efficient Irrigation Ordinance (codified in the San Francisco Administrative Code, Chapter 63) establishes a framework for planning, designing, installing, maintaining, and managing water-efficient landscaping in new construction and rehabilitation projects to reduce the amount of potable water used for irrigation. The ordinance encourages the use of climate-appropriate and local California native species, and establishes provisions for water management and the prevention of wasteful use of water in landscapes. To ensure that water is used efficiently without waste, the ordinance sets a Maximum Applied Water Allowance, using State-mandated formulas that account for local climatic conditions; this allowance may not be exceeded unless the landscaped area is irrigated with non-potable water such as greywater or harvested rain water.

San Francisco Public Works Code, Article 21 – Restriction of Use of Potable Water for Soil Compaction and Dust Control Activities

Article 21 of the San Francisco Public Works Code prohibits the use of potable water supplies for soil compaction and dust control when alternative supplies are available. Projects subject to this ordinance may use the recycled water available at the SEWPCP truck-fill station, which may be accessed 24 hours a day, 7 days a week. The station offers both top- and side-fill options and dispenses recycled water at 400 gpm. The automated fill station allows access to larger tanker trucks. The annual volume of recycled water dispensed from this station increased from about 300,000 to 739,000 gallons (an average of 0.001 to 0.002 mgd) between 2014 and 2015.[57]

San Francisco Public Works Code, Article 4.2 - Stormwater Management Requirements and Design Guidelines

Development projects that discharge stormwater to either the combined sewer system or a separate stormwater system must comply with Article 4.2 of the San Francisco Public Works Code, Section 147, which was last updated on May 27, 2016. The SFPUC and the Port have

[56] City and County of San Francisco, Office of the Mayor, *Executive Directive 14-10, Water Conservation – City Departments*, February 10, 2014.
[57] SFPUC, *2015 Urban Water Management Plan for the City and County of San Francisco*, June 2016, p. 6-13.

developed San Francisco Stormwater Management Requirements and Design Guidelines (SMR) in accordance with the requirements of the Small MS4 General Stormwater Permit and Article 4.2, Section 147.

In accordance with the SMR, developers of projects that would create and/or replace 5,000 square feet or more of impervious surfaces and discharge to the combined sewer system must implement best management practices (BMPs) to manage the flow rate and volume of stormwater going into the combined sewer system by achieving LEED® Sustainable Sites Credit 6.1 (Stormwater Design: Quantity Control). This credit includes two different standards for post-construction stormwater controls depending on the amount of existing impervious surfaces. For covered projects with 50 percent existing impervious surfaces or less, the stormwater management approach must prevent the stormwater runoff flow rate and volume from exceeding existing conditions for storms the produce a rainfall depth of 2.9 inches in 24 hours and a rainfall intensity of approximately 2.4 inches per hour (referred to as the one- and two-year 24-hour design storm). For covered projects that include more than 50 percent existing impervious surfaces, the stormwater management approach must reduce the existing stormwater runoff flow rate and volume by 25 percent for a two-year 24-hour design storm.

Developers of projects that discharge to a separate stormwater system must also implement BMPs to improve the quality of stormwater going into the separate stormwater system. In areas served by separate sewer systems, the SMR specifies varying performance requirements according to the following project size thresholds:

- Small Project: 2,500 to 5,000 square feet of impervious surface created and/or replaced.
- Large Project: 5,000 square feet or more of impervious surface created and/or replaced.

Small Projects that discharge to a separate sewer system must implement one or more Site Design Measure(s) (e.g., tree planting and preservation; permeable pavement; green roofs; vegetated swales; and rainwater harvesting). Large Projects must implement source controls and BMPs to meet performance requirements. Large Projects located on Port property must manage runoff from storms that produce a rainfall depth of 0.63 inch in 24 hours and a rainfall intensity of approximately 0.2 inch per hour (referred to as the 85th percentile, 24-hour storm). Large Projects within the Hoedown Yard would be under SFPUC jurisdiction and must manage runoff from storms the produce a rainfall depth of 0.75 inch in 24-hours and a rainfall intensity of approximately 0.24 inch per hour (referred to as the 90th percentile, 24-hour storm).

Modified Compliance Program

The City has developed the Modified Compliance Program to allow development projects with proven site challenges and limitations to modify the standard stormwater performance

requirements set by the Stormwater Design Guidelines. The Modified Compliance Program applies only to projects served by the combined sewer system.

In order to qualify for modified compliance, a site owner must submit a modified compliance application to the SFPUC that documents existing and proposed site features that limit infiltration such as high groundwater, shallow depth to bedrock, poorly infiltrating soils, steep slopes, contamination, or limited space for infiltration. The application also requires the applicant to estimate the non-potable demand for the project if the project is subject to the City's Recycled Water Ordinance. Based on this information, the SFPUC can decrease the amount the applicant must reduce the stormwater runoff volume, and would increase the required flow rate reduction by the same percentage.

San Francisco Subdivision Regulations

San Francisco's Subdivision Regulations dated March 24, 2015, serve as general guidelines for the planning, development, design, and improvement of subdivisions in San Francisco. The regulations were established pursuant to San Francisco Subdivision Code Section 1311 and supplement Public Works Code Section 147.2(b)(2), Approvals for Subdivision Stormwater Control Plans, and Section 1204(b)(2), Approvals for Subdivisions located in Recycled Water Use Areas, as well as other applicable City regulations. In accordance with the Subdivision Regulations, developers of proposed subdivisions must submit a tentative map and other application materials to the City and County Surveyor, who conveys these materials to the Planning Department and other City agencies for review and recommendations. A tentative map must be prepared for all subdivisions consisting of five or more units or lots, and must show the layout of all proposed underground utilities. It must also note any infrastructure improvements necessary to make the utility facilities operable, either on- or off-site. Engineering documents, including grading plans and utility plans, must be submitted with the tentative map and demonstrate compliance with the design criteria provided in Appendix B of the Subdivision Regulations.

Once the tentative map has been completed and San Francisco Public Works has determined that all conditions of approval have been completed, the subdivider must prepare a final map within 24 months. The subdivider may prepare phased Final Maps for individual phases of the development, if approved by the Director of Public Works. Some of the required information may be deferred to later phases of the project if they may change, be refined, or become outdated during development. All final maps are subject to approval by the Board of Supervisors.

For the construction of public improvements, such as a new pump station and sewer system infrastructure, the Subdivision Regulations require a Public Improvements Agreement between the developer and San Francisco Public Works in the case that the public improvements are not

completed before the Final Map is recorded. The Director of Public Works shall not sign or record a Final Map until Public Works has received and approved all improvement securities that are required to guarantee the performance of the public improvement. San Francisco Public Works requires a performance bond or other acceptable security in the amount of 100 percent of the estimated cost of completion of unfinished public improvements, or installation of all public improvements, as determined by the City Engineer. City-approved Improvement Plans are required for all Public Improvement Agreements.

San Francisco Zero Waste Policies

San Francisco has developed many programs and policies to manage and reduce its solid waste and to divert solid waste from landfill disposal. In 2002, the Board of Supervisors passed the Resolution Adopting Zero Waste Goal, which stated that San Francisco had a goal of 75 percent solid waste diversion by 2010 and a long-term goal of zero waste.[58] San Francisco diverted 80 percent of its solid waste in the year 2010. In 2003, the Board of Supervisors passed the Resolution Setting Zero Waste Date, which stated that San Francisco's future goal is 100 percent solid waste diversion by 2020.[59]

San Francisco Construction and Demolition Waste Ordinance

Under the San Francisco Construction and Demolition Debris Recovery Ordinance (Ordinance No. 27-06),[60] no construction and demolition material may be taken to landfill or placed in the garbage. All (i.e., 100 percent) mixed debris must be transported by a registered hauler to a registered facility to be processed for recycling. The ordinance also requires a minimum of 65 percent of all demolition debris to be recycled and diverted from landfills. This ordinance applies to all construction projects, including new construction, remodeling, and partial demolitions.

Demolition of an existing structure requires submission of a Demolition Debris Recovery Plan to the Department of the Environment. The Department must approve the plan, prior to the

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[58] City and County of San Francisco, Resolution No. 679-02, Resolution for 75% Waste Diversion Goal, September 30, 2002. Available online at http://sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/resolutionzerowastedate.pdf. Accessed December 28, 2015.

[59] City and County of San Francisco, Resolution No. 002-03-COE, Resolution Adopting a Date of 2020 for San Francisco to Achieve the Goal of Zero Waste to Landfill and Directing the Department of the Environment to Develop Policies and Programs to Increase Producer and Consumer Responsibility in Order to Achieve the Zero Waste Goal, March 6, 2003. Available online at http://sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/resolutionzerowastedate.pdf. Accessed December 28, 2015.

[60] San Francisco Environment Code, Ordinance No. 27-06 Summary, February 2006. Available online at http://www.sfenvironment.org/sites/default/files/fliers/files/cd_ordinance.pdf. Accessed December 23, 2015.

Department of Building Inspection (DBI) issuing a Full Demolition Permit (Form 6). The plan must demonstrate how a minimum of 65 percent of the material from the demolition will be diverted from landfills.

Green Building Ordinance

The City's Green Building Ordinance, which originally became effective January 1, 2009, and was amended as recently as 2013, requires that at least 75 percent of a project's construction debris be diverted from the landfill.[61] The ordinance requires that new development projects provide adequate areas for recycling, composting, and trash storage. The collection and loading facilities, including any chute systems, must be designed for equal convenience for all users to separate those three material streams, and must provide space to accommodate a sufficient number and type of containers to be compatible with current methods of collection.

Mandatory Recycling & Composting Ordinance

In June 2009, the Board of Supervisors passed the Mandatory Recycling & Composting Ordinance, which requires all of San Francisco to separate recyclables, compostables, and landfilled trash. It is unlawful to mix recyclables, compostables, or trash, or to deposit refuse of one type in a collection container designated for another type of waste. Owners or managers of apartments, condominiums, tenancies in common, food establishments, and event venues are required to maintain appropriate, color-coded (blue for recyclables, green for compostables, and black for trash), labeled containers in convenient locations. These owners and managers must educate tenants, employees, and contractors (including janitors) on what materials go in each container.

Additional Solid Waste Ordinances

The City's Plastic Bag Reduction Ordinance requires the use of compostable plastic, recyclable paper and/or reusable checkout bags by supermarkets and drugstores.

The Food Service Waste Reduction Ordinance requires restaurants and food vendors to use food storage ware that is made of compostable or recyclable material rather than styrofoam.

The Resource Conservation Ordinance requires City departments to reduce waste, maximize recycling, and buy products with recycled content.

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[61] City and County of San Francisco, Ordinance No. 259-13, Green Building Code – Enactment of New Code, August 14, 2013. Available online at http://www.energy.ca.gov/title24/2013standards/ordinances/sanfrancisco/San_Francisco_Submittal_to_California_Energy_Commission.pdf. Accessed January 8, 2016.

San Francisco General Plan

The *San Francisco General Plan* Environmental Protection Element includes the following policies relevant to water supply systems:

Policy 5.1: Maintain an adequate water distribution system within San Francisco.

Policy 5.2: Exercise controls of development to correspond to the capabilities of the water supply and distribution system.

Policy 6.1: Maintain a leak detection program to prevent the waste of fresh water.

Policy 6.2: Encourage and promote research on the necessity and feasibility of water reclamation.

The Environmental Protection Element also includes the following policy relevant to wastewater and stormwater:

Policy 3.3: Implement plans to improve sewage treatment and halt pollution of the Bay and Ocean.

The *San Francisco General Plan* Community Facilities Element also includes the following objective and policy relevant to wastewater and stormwater:

Objective 10: Locate wastewater facilities in a manner that will enhance the effective and efficient treatment of storm and wastewater.

Policy 10.1: Provide facilities for treatment of storm and wastewater prior to discharge into the Bay or ocean. Locate such facilities according to the Wastewater and Solid Waste Facilities Plan.

The Community Facilities Element also contains the following objective and policy relating to solid waste facilities:

Objective 11: Locate solid waste facilities in a manner that will enhance the effective and efficient treatment of solid waste.

Policy 11.1: Provide facilities for treatment of solid waste and locate such facilities as shown on the Wastewater and Solid Waste Facilities Plan.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE THRESHOLDS

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the Proposed Project would result in a significant impact on utilities and service systems as they relate to water, wastewater, stormwater, and solid waste. Implementation of the Proposed Project would have a significant effect on utilities and service systems if the project would:

K.1 Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

K.2 Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

K.3 Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

K.4 Have insufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements;

K.5 Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

K.6 Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or

K.7 Not comply with federal, state, and local statutes and regulations related to solid waste.

The Proposed Project would not substantially increase the amount of wastewater generated during construction. Therefore, there would be no impact related to Criteria K.1, exceeding wastewater treatment requirements; K.2, construction or expansion of wastewater facilities; or K.5, determination from the wastewater treatment provider that is has inadequate capacity during construction.

Because the Proposed Project would not increase the amount of stormwater runoff from the site during construction and would not warrant construction or expansion of existing storm drainage facilities, there would be no impact related to Criterion K.3, construction or expansion of stormwater drainage facilities during construction.

APPROACH TO ANALYSIS

Potential water supply impacts during operation are assessed with respect as to whether the SFPUC has sufficient water supply to serve the Proposed Project and whether the Proposed Project would result in the need for the construction of new water facilities or expansion of existing facilities. Potential wastewater impacts during operation are assessed with respect to whether the Proposed Project would exceed the wastewater treatment requirements of the Bayside wastewater treatment facilities; result in the need for the construction of new wastewater treatment facilities or expansion of existing facilities; or result in a determination by the SFPUC that it has inadequate capacity to serve the Proposed Project's projected wastewater demand in

addition to existing commitments. Stormwater impacts during operation are assessed with respect to the need for the construction of new stormwater drainage facilities or construction of new facilities.

The water supply analysis summarizes the projected water demands of the Proposed Project, including the use of recycled water, when and if it becomes available. The analysis also summarizes the SFPUC's Water Supply Assessment, which makes a determination as to whether there are sufficient water supplies from the regional water system to serve the Proposed Project. If there is a sufficient supply, the impact analysis concludes that water supply impacts would be less than significant. The water facilities analysis focuses on whether the existing and proposed water distribution system is sufficient to serve the Proposed Project's operational water use and firefighting demands.

The wastewater impact analysis addresses the treatment capacity of the SEWPCP and the downstream capacity of the City's combined sewer system to assess whether project-related wastewater and stormwater flows would exceed existing capacities. If not, impacts associated with exceeding the capacity of the SEWPCP, expansion of existing wastewater facilities, and a determination from the SFPUC that it has inadequate capacity to serve the project's projected demand would be less than significant. Regarding stormwater, the impact analyses focus on whether existing and proposed conveyance facilities have sufficient capacity to accommodate stormwater flows from the project site.

The impact analysis addresses generation of solid waste during construction and operation of the Proposed Project. Construction-related solid waste is evaluated in terms of City and State recycling requirements. Regarding operation-related solid waste, the analysis estimates the amount of solid waste expected to be generated during operation and compares this amount to estimates of existing City solid waste volume and landfill capacity. Requirements for recycling, composting, and reuse of solid waste materials are discussed in relation to the Proposed Project's solid waste generation.

PROJECT FEATURES

The Proposed Project includes two land use scenarios: the Maximum Residential Scenario, which reflects the most-intensive residential use of the project site, and the Maximum Commercial Scenario, which reflects the most-intensive commercial use of the project site. The two scenarios bracket specific maximum ranges of uses that could be developed under the proposed SUD and are mutually exclusive. During operation, water and wastewater demands would depend on the proposed land use and would differ between the Maximum Residential Scenario and Maximum Commercial Scenario. The analysis of water and wastewater impacts considers both scenarios.

The Proposed Project includes the installation of new infrastructure for the distribution of potable water, emergency firefighting water, and recycled water, as well as for the conveyance of wastewater and stormwater as described in "Proposed Infrastructure and Utilities" in Chapter 2, Project Description, pp. 2.55-2.67. This infrastructure includes a new pump station to replace the existing 20th Street pump station, along with potential replacement of the existing 10-inch force main and relocation of the existing 54-inch-diameter storage and detention pipeline. As stated in the impact analyses below, construction of this infrastructure under the Proposed Project would comply with the design criteria of San Francisco's Subdivision Regulations, and the design would be subject to review and approval by the SFPUC and SFFD.

The Proposed Project also includes three wastewater and stormwater management options: continued use of the City's combined sewer system (Option 1); construction of a new separate stormwater system and a new separate wastewater system (Option 2); and a hybrid system that would utilize both (Option 3). The analysis of stormwater impacts considers all three options.

Construction of the Proposed Project would result in construction and demolition debris, as well as waste soil from excavation of the 15- to 27-foot basements on some of the parcels and infrastructure improvements (e.g., utilities, streets, and open space). Solid waste disposal facilities at the residential and commercial buildings and open spaces associated with the Proposed Project would include three types of bins for segregating solid waste that can be recycled, composted, or would go to the landfill. The Proposed Project would comply with a variety of solid waste-related laws and regulations, as discussed in the Regulatory Framework section.

IMPACT EVALUATION

Water Supply and Facilities

Impact UT-1: The City's water service provider would have sufficient water supply available to serve the Proposed Project from existing entitlements and resources, and the Proposed Project would not require new or expanded water supply resources or entitlements. ***(Less than Significant)***

Construction

During construction, the Proposed Project would intermittently use non-potable water for dust control in accordance with Article 21 of the San Francisco Public Works Code and would use relatively small amounts of potable water for some site needs such as drinking water, on-site sanitary needs, and for cement mixing. The small increase in potable water demand would not be substantial. In addition, this water use would be temporary, terminating with the completion of construction. Water supplies are planned such that short-term spikes in water use can be

accommodated. Therefore, project construction would not warrant construction or expansion of water treatment facilities, and this impact would be less than significant during construction.

Operation

The evaluation of water supplies available for operation of the Proposed Project compares the amount of water that would be used for its operation under both development scenarios (referred to as the water demand) to the availability of water from the SFPUC's retail water supply. The water demand considers three sets of conditions. The first set of conditions is based on serving all site uses with potable water. However, the Proposed Project would be required to use an alternate water supply to fulfill some of its non-potable uses in accordance with the City's Non-potable Water Program. The second set of conditions is based on compliance with the City's Non-potable Water Program, and presents the projected potable and alternate water supply demands. The third set of conditions presents what the projected potable, alternate, and recycled water demands would be once off-site recycled water becomes available through the City's Eastside Recycled Water Project. As discussed on p. 4.K.34, the SFPUC has determined in its Water Supply Assessment that its retail water supplies are sufficient to meet the entire demand of the Proposed Project through 2035.[62]

The existing water demand at the project site is 0.0004 mgd[63] for on-site temporary uses including special event venues, artists' studios, self-storage facilities, warehouses, automobile storage lots, a parking lot, a soil recycling yard, and office spaces. This is a negligible portion of the anticipated water demands under the Proposed Project. The water demands presented below represent the increased water demand that would occur under both the Maximum Residential Scenario and Maximum Commercial Scenario.

Water Demands Based on Using All Potable Water

The water demand memorandum prepared by the sponsors for the Proposed Project indicates that at full build-out, the total average water demand for the Proposed Project would be 0.51 mgd under the Maximum Residential Scenario and 0.44 mgd under the Maximum Commercial Scenario, as summarized in Table 4.K.4: Average Daily Water Demands at Full Build-out.[64] These estimates assume that potable water would be used for all indoor potable water and non-potable water demands as well as for landscape irrigation and cooling water. This represents the

[62] Public Utilities Commission, City and County of San Francisco, *Resolution No. 16-0095 approving May 24, 2016 Water Supply Assessment for the Pier 70 Project*, May 24, 2016.
[63] BKF, Pier 70 *Water Demand Memorandum*.
[64] BKF, *Pier 70 Water Demand Memorandum*.

Table 4.K.4: Average Daily Water Demands at Full Build-out

	Demand for Potable Water (mgd)	Demand for On-Site Alternate Water Supply (mgd)	Demand for Off-Site Recycled Water (mgd)
Proposed Project's water demand assuming an all-potable supply			
Maximum Residential Scenario	0.51	0	0
Maximum Commercial Scenario	0.44	0	0
Proposed Project's water demand with compliance with Non-potable Water Program			
Maximum Residential Scenario	0.38	0.13	0
Maximum Commercial Scenario	0.29	0.15	0
Proposed Project's water demand in the future when off-site recycled water is available from the City			
Maximum Residential Scenario	0.38	0.13	0.006
Maximum Commercial Scenario	0.29	0.15	0.006

Note:
mgd = million gallons per day

Source: BKF, Pier 70 Water Demand Memorandum

total water demand for the Proposed Project. However, as noted below, the use of potable water would be offset with the use of an alternate water supply, in accordance with the City's Non-potable Water Program.

The residential potable water unit demand is based on 116.5 gallons per day per dwelling unit,[65] assuming 50 gallons per capita per day and 2.33 residents per dwelling unit. These assumptions are consistent with those used by the City for forecasting water demands and are somewhat conservative, given the current per capita use in the City of 44 gallons per day.[66] The total average water demand for commercial, retail, and arts/light industrial establishments is based on 0.07 gallons per day per square foot, consistent with the current California Green Building Code.

The total water demand for restaurants is based on an assumption that half of a 1,000-square-foot restaurant is dedicated to seating areas and the other half is used as the kitchen, bar, restrooms, and other facilities.[67] Each restaurant is assumed to have a total of 20 seats, and the water use is assumed to be 25 gallons per seat per day, consistent with standard methodologies used by the American Water Works Association. Based on this, the potable water unit demand for a restaurant is 0.5 gallon per day per square foot. Water use for landscape irrigation is based on

[65] BKF, *Pier 70 Water Demand Memorandum*.
[66] SFPUC, *FY 2014-15 Annual Report*, p. 6.
[67] BKF, *Pier 70 Water Demand Memorandum*.

compliance with the City's Water Efficient Landscape Irrigation Ordinance. Water use for cooling towers is based on standard engineering assumptions.

Water Demands Based on Compliance with Non-potable Water Program

The project site is located within the City's designated recycled water use area (defined under Article 22 of the San Francisco Public Works Code) and would be required to comply with San Francisco's Non-potable Water Program. This program would require buildings within the project site to use available alternate water sources such as rainwater and greywater (rather than potable water) for non-potable purposes such as toilet and urinal flushing and irrigation. The alternate water supplies could also be used in cooling towers used to cool the proposed buildings.

The estimates for non-potable demands under the Non-potable Water Program are based on 8 gallons per capita per day and 2.33 residents per dwelling unit for toilet flushing under residential uses and 0.035 gallon per day per square foot for commercial, retail, and arts/light industrial uses. Non-potable water would not be used for any restaurant purposes.

Using the above assumptions, the non-potable demand would be 0.13 mgd under the Maximum Residential Scenario and 0.15 mgd under the Maximum Commercial Scenario, as summarized in Table 4.K.4. Under both scenarios, the non-potable demand could be met with greywater generated on site, and in both cases rain water could also be used to meet some of the non-potable demands.

Compliance with the requirements of the City's Non-potable Water Program would reduce the potable water demand to 0.38 mgd under the Maximum Residential Scenario and to 0.29 mgd under the Maximum Commercial Scenario, as summarized in Table 4.K.4.

Compliance with the Non-potable Water Program is a mandatory requirement for new construction. As a subdivision, the alternate water use requirements would apply equally to all proposed new buildings. Therefore, this water demand estimate presents the most likely water use scenario for both the Maximum Residential Scenario and Maximum Commercial Scenario.

Water Demands Once Off-Site Recycled Water from the City Is Available

As discussed on p. 4.K.21, the City plans to implement the Eastside Recycled Water Project by 2029. While this project would provide an off-site source of recycled water to the project site, the Proposed Project's non-potable water demand would already be met with an on-site alternate water supply such as greywater or stormwater in accordance with the City's Non-potable Water Program. However, there may still be landscaped areas that cannot be connected to the on-site alternate water supply; such areas would benefit from being connected to the City recycled water

system, when it is available. If such connections were necessary, approximately 0.006 mgd of recycled water could be required for open space irrigation under both scenarios, as shown in Table 4.K.4.[68]

Water Supply Assessment

On May 24, 2016, the SFPUC approved and adopted the Water Supply Assessment for the Proposed Project.[69] The Water Supply Assessment concludes that there are adequate potable water supplies in the regional water system to serve the total estimated maximum 0.51 mgd of water demand for the Proposed Project and cumulative demand during normal years, single dry years, and multiple dry years from 2015 through 2035. The Water Supply Assessment also indicates that the demand from the Proposed Project is accounted for within the overall San Francisco retail water demand being used for current water supply planning.

As confirmed by the SFPUC, existing potable water supplies serving the City would be sufficient to meet the Proposed Project's maximum total water demand, and the Proposed Project would not trigger the need for new or expanded water supply resources or entitlements. Further, compliance with San Francisco's Non-potable Water Program would reduce the Proposed Project's demand for potable water to less than that already approved under the Water Supply Assessment. Therefore, the Proposed Project's impacts on water supply would be less than significant, and no mitigation is necessary.

Impact UT-2: The Proposed Project would not require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. ***(Less than Significant)***

The Proposed Project includes the installation of distribution pipelines to supply the project site with potable water for on-site uses and firefighting as well as recycled water, once it is available through the City's Eastside Recycled Water Project. The AWSS would also be augmented as required to provide a supplemental source of non-potable water for firefighting. These proposed improvements are described in "Proposed Infrastructure and Utilities" in Chapter 2, Project Description, pp. 2.55-2.67, and further discussed below. With construction of these on-site improvements, the Proposed Project would not require the construction of additional new water treatment facilities or expansion of off-site existing facilities, the construction of which would cause significant environmental effects.

[68] BKF, *Pier 70 Water Demand Memorandum*.
[69] Public Utilities Commission, City and County of San Francisco, *Resolution No. 16-0095 approving May 24, 2016 Water Supply Assessment for the Pier 70 Project*, May 24, 2016.

Potable Water Distribution

Potable water to meet the site's potable water and fire flow demands would be supplied to the project site from the SFPUC's regional water system, via the in-City low-pressure water distribution system, described on pp. 4.K.8-4.K.9. As discussed in Impact UT-1, the SFPUC has determined in the Water Supply Assessment that the maximum estimated potable water demand for the Proposed Project is already accounted for within the overall San Francisco retail water demands, for which the associated regional water treatment and transmission facilities have been established. The Proposed Project would include the construction of new water distribution lines beneath existing and proposed public streets within the project site. These lines would connect to the City's 8-inch domestic water main beneath Illinois Street at 21st and 22nd streets, and to the 12-inch domestic water main beneath 20th Street, as indicated on Figure 2.19: Proposed Low-Pressure Water Distribution System, in Chapter 2, Project Description, p. 2.56. These improvements would be constructed by the project sponsors in accordance with the rules and regulations of the SFPUC, and subsequent individual development projects would connect to these new mains via service laterals constructed by the developers of the individual projects.

As discussed on p. 4.K.9, two fire hydrants were tested in November 2013. One was located on Illinois Street at 22nd Street, and the other was near the eastern end of 20th Street. The observed flow from the opened hydrants was 900 gpm with an 8 psi drop in pressure and 1,050 gpm with a 6 psi drop in pressure, respectively. The calculated fire flow rates are 2,029 and 3,195 gpm, respectively, when the minimum residual pressure is allowed to drop to 20 psi. The required flows for specific buildings would be further evaluated during subsequent phases of development, based on Appendix B of the California Fire Code, when the application for a new fire service connection is submitted to the SFPUC.

As part of the subdivision approval process, the project sponsors would be required to request the SFPUC to conduct a hydraulic analysis of the in-City low-pressure water distribution system to confirm that the existing and planned water distribution system is adequate to meet the potable water demands of the project, including fire flow demands. If the water distribution system is found to be inadequate to meet the Proposed Project's demand, the SFPUC would be responsible for construction of the required new water mains and appurtenances to ensure adequate water conveyance capacity.

AWSS Firefighting System

As described in "Proposed Infrastructure and Utilities" in Chapter 2, Project Description, pp. 2.55-2.67, the Proposed Project includes the installation of on-site AWSS high-pressure distribution piping beneath existing and proposed streets for the purposes of firefighting. These high-pressure pipelines would connect to the existing AWSS distribution pipeline in Third Street

and would supply fire hydrants within the project site. In addition, the AWSS may include a manifold near the shoreline that could be connected to a portable submersible pump for redundancy. The AWSS features would be designed in accordance with design criteria specified in Appendix B of the Subdivision Regulations, and the design would be subject to review and approval by the SFFD and the SFPUC. In accordance with the Subdivision Regulations, the SFFD would specify hydrant locations and spacing. Generally, the hydrants would be sited at street intersections.

Recycled Water System

The City does not maintain a recycled water system in the project area, and would not be able to provide recycled water until the Eastside Recycled Water Project is operational. However, because the project site is located within a designated recycled water use area,[70] as part of the Proposed Project the project sponsors would construct recycled water distribution lines beneath the existing and proposed streets within the project site, as shown on Figure 2.20: Proposed Recycled Water Distribution System, on p. 2.58. Once the City's Eastside Recycled Water Project is constructed (expected by the end of 2029), the Proposed Project's recycled water pipelines would be connected to the City's recycled water system. This system would deliver recycled water to the project site in place of potable water. The distribution pipelines would be constructed by the project sponsors in accordance with the rules and regulations of the SFPUC, and subsequent individual development projects would connect to these new mains via service laterals constructed by developers of subsequent individual development projects. No further environmental review would be required for construction of the service laterals.

Impact Conclusion

As discussed in Regulatory Framework on pp. 4.K.24-4.K.25, the tentative map prepared for the proposed subdivision must show the layout of all proposed underground utilities in accordance with the Subdivision Regulations. The map must also note any infrastructure improvements necessary to make the utility facilities operable, either on or off the site. Engineering documents, including grading plans and utility plans, must be submitted with the tentative map and must demonstrate compliance with the design criteria provided in Appendix B of the Subdivision Regulations. These submittals would be subject to review and approval by San Francisco Public Works, and ultimately subject to approval by the Board of Supervisors. For the construction of proposed public improvements, the Subdivision Regulations would require a Public Improvements Agreement between the developer and San Francisco Public Works if the

[70] SFPUC, *Recycled Water Us*e. Available online at http://www.sfwater.org/index.aspx?page=687. Accessed November 29, 2015.

improvements are not completed before the Final Map is recorded. City-approved Improvement Plans are required for all Public Improvement Agreements.

Implementation of these subdivision requirements would ensure that each water supply system is designed and constructed to accommodate projected water demands and fire flows in accordance with accepted City standards. Any off-site improvements needed to accommodate the Proposed Project's water demand would likely consist of upsizing off-site water mains or appurtenances, if required. Construction of these facilities would necessitate excavation, trenching, soil movement, and other activities typical of construction of development projects in San Francisco, and similar to those construction activities analyzed in this Environmental Impact Report (EIR).

Therefore, the Proposed Project would not require or result in the construction of new or expanded water treatment facilities that would cause significant environmental effects, and this impact would be less than significant. No mitigation is necessary.

Wastewater Facilities

Impact UT-3: The Proposed Project would not exceed wastewater treatment requirements of the Southeast Water Pollution Control Plant. ***(Less than Significant)***

Based on the estimated water demand for the Proposed Project, the project sponsors estimate that the increase in the average dry-weather wastewater flows under the Maximum Residential Scenario would be 0.48 mgd and average dry-weather wastewater flows under the Maximum Commercial Scenario would be 0.41 mgd at full build-out.[71] These estimates are based on using City-supplied recycled water for on-site non-potable uses. Both estimates assume that the sewer demand would be 95 percent of the indoor water potable water demand and 100 percent of the recycled water demand described above under Impact UT-1. The estimates also assume that 50 percent of the water used in cooling towers to cool the buildings would be discharge to the combined sewer system and that the irrigation demand would not contribute to the sewer demand.

Wastewater flows from the project site would be conveyed to the SEWPCP for treatment prior to discharge to San Francisco Bay. The SEWPC has a dry-weather capacity of 84.5 mgd, and the annual average wastewater flow to the SEWPCP during dry weather is 60 mgd.[72] Therefore, the SEWPCP has a remaining capacity of approximately 24.5 mgd, and the Proposed Project's average dry-weather wastewater demand of up to 0.48 mgd would be well within the remaining capacity of the SEWPCP. Therefore, impacts related to exceeding the wastewater treatment requirements of the SEWPCP would be less than significant, and no mitigation is necessary.

[71] BKF, *Pier 70 Sewer Demand Memorandum*, March 29, 2016 (hereinafter referred to as "*Pier 70 Sewer Demand Memorandum*").
[72] San Francisco Water Power Sewer, *San Francisco's Wastewater Treatment Facilities*, June 2014.

Water quality impacts associated with discharges to the City's combined sewer system are discussed in Impact HY-2 (see Section 4.O, Hydrology and Water Quality, pp. 4.O.54-4.O.64).

Impact UT-4: The Proposed Project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Nor would the project result in a determination by the SFPUC that it has inadequate capacity to serve the project's projected demand in addition to its existing commitments. ***(Less than Significant)***

The project site is located within the 20th Street sub-basin of the City's combined sewer system. The 20th Street pump station conveys flows from the 20th Street sub-basin to the combined sewer system during both dry and wet weather. The pump station is designed to convey all dry-weather flows to the combined sewer system for treatment at the SEWPCP. During wet weather, the pump station and associated storage and detention pipes are designed to ensure that discharges from this sub-basin through the 20th and 22nd Street discharge structures do not exceed the long-term average of 10 CSDs per year as allowed under the Bayside NPDES permit.

Volumetric testing by the SFPUC in 2013 indicated that the 20th Street pump station dry-weather capacity is about 2.65 mgd with both pumps running.[73] In 2013, the average dry-weather wastewater flow rate to the pump station was 0.75 mgd at the time of the test and the peak flow rate was 1.5 mgd. Based on this, the SFPUC estimated that the pump station has a remaining capacity of about 1.2 mgd during dry weather.

The project sponsors estimate that the increase in the peak dry-weather wastewater flows would be 1.5 mgd under the Maximum Residential Scenario, and 1.3 mgd under the Maximum Commercial Scenario.[74] Both of these estimates assume that the sewer demand would be 95 percent of the indoor potable water demand and 100 percent of the recycled water demand described above under Impact UT-1; that 50 percent of the water used in the cooling towers to cool the buildings would be discharged to the sewer system; and that the irrigation demand would not contribute to the sewer demand.

The dry-weather sewer demand estimates for both the Maximum Residential Scenario and Maximum Commercial Scenario are greater than the remaining dry-weather capacity of the 20th Street pump station by approximately 0.3 and 0.1 mgd, respectively. To address this, the project sponsors would construct a new pump station to replace the 20th Street pump station, as described in "Common Improvements" in Chapter 2, Project Description, pp. 2.59-2.61. While portions of the existing force main that conveys wastewater flows to the combined sewer system could potentially be used under either proposed development scenario, this EIR conservatively assumes

[73] SFPUC, 20th Street Pump Station Technical Memorandum, p. 5.
[74] BKF, Pier 70 Sewer Demand Memorandum.

that the entire force main would be replaced. The need for replacement would be determined during final design. The 900-foot-long, 54-inch sewer line connecting the 20th and 22nd streets discharge structures would also be relocated to the east, beneath the proposed Waterfront Terrace and Waterfront Promenade. The 54-inch line provides storage of combined wastewater and stormwater during wet weather and is integral in controlling the number of combined sewer discharges from the 20th Street sub-basin during wet weather.

The new pump station and associated pipelines would be designed to accommodate both dry-weather and wet-weather flows from the existing 20th Street sub-basin, based on flows from the existing baseline, the Proposed Project at full build-out, and cumulative project contributions. The specific design criteria for the pump station would depend on the wastewater and stormwater management option selected (Combined Sewer System, Separated Systems, or Hybrid System), as discussed in Impact HY-2 in Section 4.O, Hydrology and Water Quality, pp. 4.O.54-4.O.64. However, in all cases, the performance standards require that the pump station be designed with a dry-weather capacity to accommodate all dry-weather flows and with a wet-weather capacity sufficient to ensure that potential wet-weather combined sewer discharges from the 20th Street sub-basin and associated downstream basins do not exceed the long-term average number of 10 combined sewer discharge events per year, as specified in the Bayside NPDES permit or applicable corresponding permit condition at time of final design. Impact HY-2 further discusses potential impacts associated with changes in wet-weather flows.

The conceptual description of the new pump station presented in Chapter 2, Project Description, is based on Wastewater and Stormwater Option 1 - Combined Sewer System, which includes use of the combined sewer system only. Under this option, all of the stormwater runoff from the project site would be discharged to the combined sewer system. Therefore, in terms of both physical size and capacity, this is the largest pump station that would be required under any of the three wastewater and stormwater management options because of the volume of stormwater discharged, and represents the worst case in terms of potential construction and operational impacts. The physical environmental impacts resulting from the construction and operation of the new pump station are addressed in other sections of this EIR, particularly Sections 4.D, Cultural Resources; 4.F, Noise and Vibration; 4.G, Air Quality; 4.H, Greenhouse Gas Emissions; 4.M, Biological Resources; 4.N, Geology and Soils; 4.O, Hydrology and Water Quality; 4.P, Hazards and Hazardous Materials; and 4.Q, Mineral and Energy Resources.

Water quality impacts related to operation of the new pump station are significant because of the potential to exceed the Bayside NPDES permit limitations during operation, as discussed Impact HY-2. These operational impacts would be reduced to a less-than-significant level with the implementation of Mitigation Measures M-HY-2a: Design and Construction of Proposed Pump Station for Options 1 and 3, or M-HY-2b: Design and Construction of Proposed Pump

Station for Option 2, pp. 4.O.60 and 4.O.61, respectively, depending on the stormwater management option selected. However, the impacts of constructing the new pump station are adequately addressed in this EIR. Therefore, this impact would be less than significant, and no mitigation is necessary.

Stormwater Facilities

Impact UT-5: The Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. ***(Less than Significant)***

The Proposed Project includes three options for stormwater and wastewater management: Option 1, Combined Sewer System, which would utilize only the combined sewer system; Option 2, Separated Systems, which would utilize the combined sewer system for wastewater flows and a new separate storm drain system for storm runoff; and Option 3, Hybrid System, which would utilize both the combined sewer system and a new separate storm drain system for stormwater runoff. All of these options are described in "Wastewater and Stormwater Flow Options" in Chapter 2, Project Description, pp. 2.61-2.66.

Appendix B of the City's Subdivision Regulations specifies that both the combined sewer system and any separate stormwater system must have sufficient capacity to accommodate stormwater runoff from the entire tributary area that could result from a five-year storm (defined as a storm that has a 20 percent probability of occurring in any one year). Streets and drainage channels must be sized to accommodate excess surface flows from a 100-year storm (defined as a storm that has a 1 percent probability of occurring in any one year). The discussion below describes how each option would comply with these requirements and explains why this impact would be less than significant for each option.

Wastewater and Stormwater Option 1: Combined Sewer System

Under wastewater and stormwater Option 1, all stormwater flows would be conveyed to the combined sewer system under the jurisdiction of the SFPUC. The new components would be designed with sufficient capacity to accommodate stormwater runoff from a five-year storm and streets and drainage channels would be sized to accommodate excess surface flows from a 100-year storm. Further, in accordance with the SMRs, development projects implemented pursuant to the Proposed Project would be required to reduce the existing stormwater runoff flow rate and volume by 25 percent for a two-year 24-hour design storm if they are located on a site comprised of more than 50 percent impervious surfaces. If the project site is comprised of 50 percent or less impervious surfaces, the stormwater management approach must prevent the stormwater runoff flow rate and volume from exceeding existing conditions for the one- and two-year 24-hour

design storm. Alternatively, specific development activities could seek modified compliance with the SMRs, which would affect the amount of stormwater discharged to the combined sewer system. Potential methods for achieving the required reductions are discussed in Impact HY-2 (see Section 4.O, Hydrology and Water Quality).

As discussed in "Proposed Infrastructure and Utilities" in Chapter 2, Project Description, pp. 2.55-2.67 and Impact HY-2, the proposed 20th Street pump station would be designed with a wet-weather capacity sufficient to ensure that potential wet-weather combined sewer discharges from the 20th Street sub-basin and associated downstream basins do not exceed the long-term average of 10 CSDs per year as allowed under the Bayside NPDES permit or applicable corresponding permit condition at time of final design.

Wastewater and Stormwater Option 2: Separate Wastewater and Stormwater Systems

Under wastewater and stormwater Option 2, all of the stormwater runoff from the project site would be discharged to a new separate stormwater system that would be under the jurisdiction of the Port. The system would convey stormwater flows to a new outfall located near the foot of the new 21st Street. The new outfall would discharge stormwater to the Central Basin of Lower San Francisco Bay. The separate stormwater system would be designed with sufficient capacity to accommodate stormwater runoff from a five-year storm and streets and drainage channels would be sized to accommodate excess surface flows from a 100-year storm. As summarized in Impact HY-2, the City's SMRs would also require that development projects that discharge to the new separate stormwater system utilize a stormwater management approach that captures and treats runoff from an 85th percentile, 24-hour storm. Large Projects within the Hoedown Yard would be under SFPUC jurisdiction and must manage runoff from a 90th percentile, 24-hour storm. BMPs that would be used to meet these requirements are addressed in Impact HY-2.

Wastewater and Stormwater Option 3: Hybrid System

Under wastewater and stormwater Option 3, the combined sewer would continue to serve most of the project site. However, the area to the east of the proposed Maryland Street, including the proposed open space areas, would be served by a new separate stormwater system that would convey stormwater flows to a new outfall located near the foot of the new 21st Street. The new outfall would discharge stormwater to the Central Basin of Lower San Francisco Bay. All of the new stormwater drainage infrastructure would be designed with sufficient capacity to accommodate stormwater runoff from a five-year storm and streets and drainage channels would be sized to accommodate excess surface flows from a 100-year storm.

In the area served by the new separate stormwater system, flows diverted to San Francisco Bay would provide the 25 percent reduction in stormwater flows to the combined sewer system from

the 28-Acre Site. As discussed in Chapter 2, Project Description, and Impact HY-2, the new 20th Street pump station would be designed with a wet-weather capacity sufficient to ensure that potential wet-weather combined sewer discharges from the 20th Street sub-basin and associated downstream basins do not exceed the long-term average of 10 CSD events per year, as specified in the SFPUC Bayside NPDES permit or applicable corresponding permit condition at time of final design.

Impact Conclusion

As discussed above, the proposed stormwater infrastructure for both the combined sewer system and the separate stormwater systems would be constructed to accommodate a five-year storm and the streets and drainage channels would be sized to accommodate excess surface flows from a 100-year storm, in accordance with the City's Subdivision Regulations. The impacts of constructing this infrastructure under all three wastewater and stormwater options are addressed in other relevant sections of this EIR, particularly Sections 4.D, Cultural Resources; 4.F, Noise; 4.G, Air Quality; 4.H, Greenhouse Gas Emissions; 4.M, Biological Resources; 4.N, Geology and Soils; 4.O, Hydrology and Water Quality; 4.P, Hazards and Hazardous Materials; and 4.Q, Mineral and Energy Resources. Therefore, the Proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, this impact would be less than significant for all three wastewater and stormwater management options. No mitigation is necessary.

Solid Waste

Impact UT-6: The Proposed Project would be served by a landfill with sufficient capacity to accommodate the Proposed Project's solid waste disposal needs. ***(Less than Significant)***

The evaluation of solid waste includes the impacts associated with the construction and operation of the Proposed Project.

Construction Impacts

Construction of the Proposed Project would generate solid waste through the demolition and deconstruction of certain existing structures and infrastructure. Construction of the Proposed Project in phases is expected to take approximately 11 years to reach full build-out.

The buildings to be demolished or deconstructed are primarily composed of wood, metal, and concrete construction. To the extent practical, existing structures would be deconstructed, allowing for maximum reuse of materials for compliance with City regulations. The feasibility of reuse or recycling of materials may be limited by requirements for abatement of hazardous

materials, such as lead-based paint and asbestos, and by the potentially low value of the recycled material. In addition to the demolition and deconstruction of existing structures on the project site, certain existing pavements, underground utilities, and overhead utilities would be removed. Where possible, concrete and asphalt would be recycled or made available for use elsewhere on-site. Any contaminated soils and hazardous building materials located on-site would be appropriately disposed of in accordance with established Federal, State, and local laws and regulations as discussed in Section 4.P, Hazards and Hazardous Materials.

Under the San Francisco Construction and Demolition Debris Recovery Ordinance, no construction and demolition material may be taken to landfill or placed in the garbage. All mixed debris must be transported by a registered hauler to a registered facility to be processed for recycling. The Construction and Demolition Debris Recovery Ordinance also requires a minimum of 65 percent of all demolition debris to be recycled and diverted from landfills. The ordinance would also require preparation of a Demolition Debris Recovery Plan. Moreover, the 2013 Green Building Ordinance would require that at least 75 percent of the Proposed Project's construction debris is diverted from the landfill. Compliance with these requirements is mandatory and enforced by the DBI.[75] Given compliance with these mandatory diversion requirements, the impact of construction-related solid waste would be less than significant.

Operational Impacts

According to CalRecycle, San Francisco residents generate approximately 3.3 pounds of solid waste for disposal in a landfill per resident per day, while commercial uses generate approximately 4.4 pounds for disposal in a landfill per employee per day.[76] Under existing conditions, the project site generates approximately 400 tons of solid waste for disposal per year.

Maximum Residential Scenario

The Proposed Project would generate solid waste for landfill disposal, recyclables, and compostables. Solid waste for landfill disposal is the focus of the impact analysis. Table 4.K.5: Estimated Solid Waste Generation for Landfill Disposal under the Maximum Residential Scenario, presents estimated solid waste generation for the Maximum Residential Scenario at full build-out. The 28-Acre Site would generate approximately 6,400 tons per year of solid waste, and the Illinois Parcels would produce approximately 1,350 tons per year. The total of

[75] San Francisco Department of Building Inspection, Green Building Ordinance (web page). Available online at http://sfdbi.org/green-building-ordinance. Accessed January 8, 2016.

[76] CalRecycle, Jurisdiction Diversion/Disposal Rate Detail (web page) (for San Francisco 2014 data). Available online at http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionDetail.aspx?JurisdictionID=438&Year=2014. Accessed January 9, 2016.

approximately 7,750 tons per year would be approximately 1.6 percent of the total quantity of solid waste generated in 2014 by the City as a whole (498,428 tons). [77]

Table 4.K.5: Estimated Solid Waste Generation for Landfill Disposal under the Maximum Residential Scenario

Site	Persons	Solid Waste Generation (tons/year)
28-Acre Site		
Population	4,881	2,900[1]
Employment	5,443	3,500[2,3]
Subtotal	***10,324***	***6,400***
Illinois Parcels		
Population	1,987	1,200[1]
Employment	156	150[2,3]
Subtotal	***2,143***	***1,350***
TOTAL		**7,750**

Notes:
[1] The solid waste generation factor for residents is 3.3 pounds per day per person.
[2] The solid waste generation factor for employees is 4.4 pounds per person per day.
[3] Commercial-Office space is calculated at 260 work-days per year; for all other types of employees, 365 day per year of operation is assumed.

Source: SWCA 2016

Maximum Commercial Scenario

Table 4.K.6: Estimated Solid Waste Generation for Landfill Disposal under the Maximum Commercial Scenario, presents estimated solid waste generation for the Maximum Commercial Scenario at full build-out. The 28-Acre Site would generate approximately 7,000 tons per year of solid waste, and the Illinois Parcels would produce approximately 1,350 tons per year. The total of approximately 8,350 tons per year would be approximately 1.7 percent of the total quantity of solid waste generated in 2014 by the City as a whole (498,428 tons).

Diversion Strategies under Both the Maximum Residential and Maximum Commercial Scenarios

The City has implemented a number of aggressive strategies to divert additional solid waste and achieve Citywide diversion goals as described in "San Francisco's Solid Waste Reduction Efforts," in Regulatory Setting, pp. 4.K.14-4.K.15. The City requires residents and businesses to pre-sort recyclables, compostable wastes (food scraps and yard waste), and garbage into separate curbside collection containers. The City sponsors regular public outreach events to educate San

[77] CalRecycle, "Jurisdiction Diversion/Disposal Rate Detail" (web page) (for San Francisco 2014 data). Available online at http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionDetail.aspx?JurisdictionID=438&Year=2014. Accessed January 9, 2016.

Table 4.K.6: Estimated Solid Waste Generation for Landfill Disposal under the Maximum Commercial Scenario

Site	Persons	Solid Waste Generation (tons/year)
28-Acre Site		
Population	2,497	1,500[1]
Employment	8,754	5,500[2,3]
Subtotal	***11,251***	***7,000***
20th/Illinois Parcels		
Population	1,238	750[1]
Employment	1,014	600[2,3]
Subtotal	***2,252***	***1,350***
TOTAL		**8,350**

Notes:

[1] The solid waste generation factor for residents is 3.3 pounds per day per person.

[2] The solid waste generation factor for employees is 4.4 pounds per person per day.

[3] Commercial-Office space is calculated at 260 work-days per year; for all other types of employees, 365 day per year of operation assumed.

Source: SWCA 2016

Francisco residents and businesses about waste diversion techniques, and conducts special collection events for wastes that are not generally recyclable at curbside (e.g., batteries, electronics, hazardous wastes). For municipal operations, City departments participate in a sustainable purchasing program that encourages the purchase of recyclable materials. The City also sponsors grants for waste diversion research and works with businesses to create market opportunities for materials reuse and recapture. Local waste management providers have upgraded sorting and transfer facilities to maximize the volume of material diverted.

The City's contribution to landfills is anticipated to diminish over time as it implements more aggressive waste-diversion strategies. Increasing solid waste diversions would extend the life of the landfills used by the City, lengthening the time horizon before the remaining disposal capacity is filled.

Although the Proposed Project would incrementally increase total waste generation from the City by increasing population and employment, the increasing rate of diversion through recycling and other methods implemented under the City's regulations would likely result in a decreasing share of total waste that requires deposition into the landfill.

In September 2015, the City approved an Agreement with Recology, Inc., for the transport and disposal of the City's municipal solid waste at the Recology Hay Road Landfill in Solano County. That Agreement is anticipated to extend for approximately nine years from 2016, with an option to renew the Agreement thereafter for an additional six years. The Recology Hay Road Landfill is permitted to accept up to 2,400 tons per day of solid waste. As of 2013, Recology estimated the landfill had capacity to accommodate solid waste until approximately 2077.[78] The remaining capacity as of 2010 was 30,433,000 cubic yards.[79]

Given the City's record of reducing its municipal waste sent to the landfill, and given the near-term and the long-term capacity available at the Recology Hay Road Landfill, the solid waste from the Proposed Project would not result in the landfill exceeding its permitted capacity, and the Proposed Project would result in a less-than-significant solid waste generation impact. No mitigation is required.

Impact UT-7: The Proposed Project would not fail to comply with Federal, State, and local statutes and regulations related to solid waste. ***(No Impact)***

As discussed above, during project construction, the project sponsors would be required to comply with the City's Construction and Demolition Debris Recovery Ordinance and Green Building Ordinance.

During operation, the Proposed Project would be required to comply with the laws and regulations that aim to divert waste from landfills, including but not limited to, the Green Building Ordinance, Mandatory Recycling & Composting Ordinance, Plastic Bag Reduction Ordinance, and Food Service Waste Reduction Ordinance.

The Proposed Project would comply with local solid waste ordinances, and would comply with State standards for reducing solid waste. Because State and local laws and regulations are more stringent than Federal standards, State and local laws are the primary driver for the reduction in solid waste. There would be no impact regarding compliance with solid waste laws and regulations. No mitigation measures are required.

[78] California Department of Resources Recycling and Recovery (CalRecycle), Facility/Site Summary Details: Recology Hay Road (48-AA-0002). Available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/48-AA-0002/Detail/ (with link to permit). Accessed January 9, 2016.

[79] Ibid. (see permit).

Cumulative Impacts

Impact C-UT-1: The Proposed Project, in combination with other past, present, and reasonably foreseeable future projects, would not result in significant adverse cumulative utilities and service systems impacts. ***(Less than Significant)***

The geographic context for impacts to utilities and service systems encompasses the service areas for the applicable service providers. The Proposed Project, when combined with past, present, and reasonably foreseeable future development, would increase demand for water, wastewater, and solid waste disposal services of these providers and the cumulative impacts related to these increases are discussed below.

Water Supply

As described in Impact UT-1, the SFPUC has approved and adopted a Water Supply Assessment for the Proposed Project, concluding that there are adequate potable water supplies in the regional water system to serve the total estimated maximum 0.51 mgd of water demand for the Proposed Project and cumulative demand during normal years, single dry years, and multiple dry years from 2015 through 2035.[80] The Water Supply Assessment also indicates that the demand from the Proposed Project is accounted for within the overall San Francisco retail water demand being used for current water supply planning. Therefore, the cumulative impacts on water supply would be less than significant, and no mitigation is necessary.

Wastewater Facilities

As discussed above in Impact UT-3, the peak wastewater flows under both the Maximum Residential Scenario and Maximum Commercial Scenario in combination with existing wastewater flows would exceed the 2.65 mgd capacity of the existing 20th Street pump station. To address this, the project sponsors propose to construct a new 20th Street pump station and potentially replace the associated force main to convey flows to the City's combined sewer system. The project sponsors would design the new pump station and associated force main to accommodate both dry-weather and wet-weather flows from the 20th Street sub-basin, including existing flows, the Proposed Project at full build out, and cumulative project contributions from other areas within the sub-basin, including the BAE Systems area to the north of 20th Street and the 20th Street Historic Core site.

However, the SFPUC and San Francisco Public Works have evaluated the current capacity of the existing combined sewer system downstream of the 20th Street sub-basin and determined that

[80] SFPUC, City and County of San Francisco, *Resolution No. 16-0095 approving May 24, 2016 Water Supply Assessment for the Pier 70 Project*, May 24, 2016.

additional capacity is needed to convey the estimated future cumulative flows (including those from the Proposed Project at full build-out) from the existing Marin Street sewer to the Islais Creek storage and transport structure. The Marin Street sewer collects drainage from several areas including Mission Bay South, Potrero Hill, and Piers 70 and 80.[81]

To increase the conveyance capacity, the SFPUC will construct the Kansas and Marin Streets Sewer Improvements Project and Marin Street Sewer Replacement Project under the Sewer System Improvement Program.[82] The Kansas and Marin Streets Sewer Improvements Project will construct a 360-foot-long auxiliary sewer to connect the Marin Street sewer to the Islais Creek storage and transport structure. The Marin Street Sewer Replacement Project involves replacing about 1,800 feet of the existing 24-inch Marin Street sewer line from Third Street westward to the Marin Outfall at Islais Creek with a 30-inch sewer line.

As the owner and operator of the combined sewer system, the SFPUC is responsible for constructing these projects. Engineering, planning, and design of this project are underway and the City has prepared documentation for Categorical Exemptions under CEQA.[83,84] The projects are approved and funded, and construction is scheduled to be completed by the end of 2018, prior to implementation of the Proposed Project.

With construction of these approved and funded projects by the SFPUC, cumulative impacts related to exceeding the capacity of the combined sewer system would be less than significant. SFPUC's review of future cumulative flows did not identify any other needed improvements to convey cumulative wastewater flows to the SEWPCP.

Stormwater Facilities

As discussed in Impact UT-5, the project site would be served by new stormwater infrastructure to be constructed as part of the Proposed Project. While the Proposed Project includes three options for stormwater and wastewater management (Option 1, Combined Sewer System; Option 2, Separated Systems; and Option 3, Hybrid System), the stormwater infrastructure constructed under each option must have sufficient capacity to accommodate stormwater runoff from the project site in accordance with San Francisco's Subdivision Regulations. In addition, streets and drainage channels would be sized to accommodate excess surface flows from a 100-year storm. Under Options 2 and 3, the project site would comprise the entire tributary area for

[81] Email from Molly Petrick, San Francisco Public Utilities Commission, to Kelly Pretzer, Forest City Enterprises and Craig Freeman, San Francisco Public Utilities Commission *re Pier 70 SUD – Phased Water/Sewer Demands*, October 2, 2015.
[82] San Francisco Public Utilities Commission, Quarterly Report, Wastewater Enterprise Programs, October 2015 – December 2015, February 16, 2016, p. A-8.
[83] Environmental Case No. 2015-005036ENV.
[84] Environmental Case No. 2016-011325ENV.

the Proposed Project's separate storm drainage system, so there would be no cumulative impact related to storm drainage capacity. Under Options 1 and 3, the new 20th Street pump station that would convey stormwater flows to the combined sewer system would be designed to accommodate both dry-weather and wet-weather flows from the existing 20th Street sub-basin, based on flows from the existing baseline, the Proposed Project at full build-out, and cumulative project contributions, without causing an increase in combined sewer discharges into the combined sewer system. Therefore, the Proposed Project when combined with other reasonably forseeable projects would not result in cumulative impacts that require the construction of new stormwater drainage facilities nor require the expansion of existing facilities. This cumulative impact would be less than significant, and no mitigation is necessary.

Solid Waste

The City and County of San Francisco currently exceeds Statewide goals for reducing solid waste, and is expected to further reduce solid waste volumes in the future. The operation of the Proposed Project would not contribute considerably to significant regional impacts on landfill capacity, because it would comply with City and County of San Francisco requirements to reduce solid waste, as would other development projects that would also contribute waste to the City's landfills. The construction of other cumulative projects identified for this EIR would generate construction waste during their construction periods. However, the Proposed Project's program of construction waste diversion and compliance with regulatory requirements, along with the cumulative projects' compliance with regulatory requirements, would reduce their contribution to overall solid waste volumes such that the contribution would not be considerable, and the Proposed Project in combination with the cumulative projects would not have a significant cumulative impact.

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