

## SECTION III.Q UTILITIES

### III.Q.1 Introduction

This section evaluates the effects on utilities and service systems related to implementation of the Project by identifying anticipated demand and existing and planned utility availability. For purposes of this EIR, utilities include water supply, wastewater conveyance and treatment, and solid waste collection and disposal. Stormwater<sup>981</sup> is discussed in Section III.M (Hydrology and Water Quality). The impacts of the Project related to electricity and natural gas demand and consumption are analyzed in Section III.R (Energy). This section analyzes electricity, natural gas, and telecommunications infrastructure relative to their ability to serve the Project site. This section identifies both Project-level and cumulative environmental impacts, as well as feasible mitigation measures that could reduce or avoid the identified impacts. The baseline conditions used in this analysis are identified under each utility discussion.

Data used to prepare this section include information obtained from the San Francisco Public Utilities Commission (SFPUC), the California Integrated Waste Management Board (CIWMB), the San Francisco Bay Regional Water Quality Control Board (RWQCB), and other regulatory agencies and service providers. Water demand was estimated in the *Water Supply Assessment for the Proposed Candlestick Point–Hunters Point Shipyard Phase II Project* (WSA) prepared by PBS&J for the SFPUC, included as Appendix Q1 (Water Supply Assessment). Additional information was obtained from several studies prepared on behalf of Lennar Urban, including the *Candlestick Point/Hunters Point Shipyard Infrastructure Concept Report* (2007) prepared by Winzler & Kelly Consulting Engineers; the *Low Impact Development Analysis* (2008) prepared by Winzler & Kelly; the *LID Stormwater Opportunity Study* (2009) prepared by Arup; the *Revised Water Demand Memorandum* dated October 15, 2009, by Arup, included as Appendix Q2 (Water Demand Memorandum); Technical Memorandum from Hydroconsult Engineers dated October 2009 (Appendix Q3 [Technical Memorandum from Hydroconsult Engineers]); and the *CPHPS Infrastructure Plan* (October 2009) prepared by Winzler & Kelly and Arup.

## Water

### III.Q.2 Setting

#### ■ Regional Water System

The Project site is served by the San Francisco Public Utilities Commission, which manages a complex Regional Water System (RWS), stretching from the Sierra Nevada Mountains to San Francisco Bay Area and serving 2.5 million residential, commercial, and industrial customers in the Bay Area and Sierra

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<sup>981</sup> One threshold provided under the Utilities and Service Systems section of Appendix G of the CEQA Guidelines specifically relates to stormwater (Criterion XIV(c)); this threshold is addressed in Section III.M (Hydrology and Water Quality) of this EIR.

Nevada foothills.<sup>982</sup> The RWS can be thought of as consisting of three integrated water supply and conveyance systems: Hetch Hetchy, Alameda, and the Peninsula systems.

The RWS provides wholesale water service to twenty-seven Bay Area water agencies located in Alameda, San Mateo, and Santa Clara Counties (wholesale customers), and also provides retail water for the residents, businesses, and industries within the municipal boundaries of the City and County of San Francisco (retail customers). In addition, the retail customers also include San Francisco International Airport and San Francisco County Jail in San Mateo County, the unincorporated Town of Sunol, Lawrence Livermore Laboratory, Castlewood development in Alameda County, and Groveland Community Services District in Tuolumne County.

## ■ Auxiliary Water Supply System

The Auxiliary Water Supply System (AWSS) is a separate and distinct water supply system for fire protection purposes only. Candlestick Point and HPS Phase II are not currently served by the AWSS. Currently, there is a planned extension of the AWSS on Gilman Street from Ingalls Street to Candlestick Point. The Project would connect to this extension and provide an AWSS loop within Candlestick Point. At HPS Phase II, the AWSS would be connected to the existing AWSS system at the intersection of Earl Street and Innes Avenue and at the Palou Avenue and Griffith Avenue intersection with a looped service along Spear Avenue/Crisp Road.

## ■ Sources of Water Supply

In Fiscal Year 2007/08 the RWS delivered an annual average of approximately 256.7 million gallons<sup>983</sup> of water per day (mgd), with approximately 85 percent of that water supply provided by the Hetch Hetchy system, which diverts water from the Tuolumne River. The balance (of approximately 15 percent<sup>984</sup>) comes from runoff in the Alameda Creek watershed, which is stored in the Calaveras and San Antonio reservoirs, and runoff from the San Francisco Peninsula, which is stored in the Crystal Springs, San Andreas, and Pilarcitos reservoirs (which also provide storage for water delivered from the Alameda and Hetch Hetchy systems). A small portion of retail demand is met through locally produced groundwater, used primarily for irrigation at local parks and on highway medians, and recycled water, which is used for wastewater treatment process water, sewer box flushing, and similar wash down operations. The SFPUC also retails groundwater (pumped from the Pleasanton well field) to the Castlewood development in Alameda County.

## ■ Water Supply Reliability Planning

To enhance the reliability of the RWS, improve dry-year supplies, diversify the water supply portfolio, and meet projected wholesale and retail demand through 2030, the SFPUC developed the Water Supply Improvement Program (WSIP), approved on February 28, 2005. Under the WSIP as originally developed, the SFPUC proposed to meet projected 2030 average daily purchase requests of 300 mgd in

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<sup>982</sup> City and County of San Francisco, Public Utilities Commission (SFPUC) website, <http://www.sfgov.org/site/frame.asp?u=http://www.sfwater.org/> accessed August 16, 2009.

<sup>983</sup> PBS&J, Water Supply Availability Study of City and County of San Francisco, October, 2009.

<sup>984</sup> Ibid.

the RWS service area by increasing diversions from the Tuolumne River under its existing water rights and developing 10 mgd of new local resources through a combination of additional conservation, water recycling and groundwater supply programs.<sup>985</sup> The WSIP proposed various water facility improvement projects to achieve stated public health, seismic safety, delivery reliability and water supply goals. The WSIP also included provisions for obtaining additional dry-year supplies. The Program Environmental Impact Report (PEIR) for the WSIP identified and analyzed potential impacts that would result from implementation of the WSIP, including the diversion of an additional 35 mgd annual average from the Tuolumne River, along with 3 variants and 6 alternatives, including various water supply combinations that could meet future demand. Impacts associated with the water supply decisions were analyzed at a project-level of detail. All facility projects, including construction of projects to implement proposed local water supply projects were analyzed at a program-level of detail. After certification of the FPEIR by the Planning Commission, on October 30, 2008, the SFPUC adopted a Phased WSIP option, which included the following program elements: (1) full implementation of all WSIP facility improvement projects; (2) water supply delivery to RWS customers through 2018 with an average annual target delivery of 265 mgd originating from the watersheds. This includes 184 mgd for wholesale customers and 81 mgd for retail customers; (3) water supply sources consisting of 265 mgd average annual from SFPUC watersheds, 10 mgd conservation, recycled water, and groundwater in San Francisco and 10 mgd conservation, recycled water, and groundwater in the wholesale service area; (4) dry-year water transfers coupled with the Westside Groundwater Basin Conjunctive Use project to ensure drought reliability; (5) re-evaluation of 2030 demand projections, RWS purchase requests and water supply options by 2018 and a separate SFPUC decision by 2018 regarding water deliveries after 2018; and (6) provision in the new Water Supply Agreement between the SFPUC and wholesale customers to impose financial penalties to limit water sales to an average annual 265 mgd from the SFPUC watersheds through 2018 (SFPUC Resolution No. 08-0200, October 30, 2008). Thus, under the Phased WSIP, SFPUC has voluntarily chosen to limit deliveries from the RWS surface water supplies, and by December 31, 2018, the SFPUC will reevaluate water demands and water supply options through 2030 in the context of then-current information.

The Phased WSIP would meet projected 2018 demand of approximately 285 mgd by capping deliveries from the RWS at 265 mgd, with 184 mgd allocated to wholesale customers and 81 mgd allocated to retail customers<sup>986</sup>. The remaining 20 mgd of demand would be met through water conservation, recycling and groundwater, with 10 mgd provided by wholesale customers and 10 mgd provided by local projects within San Francisco. Improved dry-year supplies would be provided via implementation of the Westside Groundwater Basin Conjunctive Use Project (in San Mateo County), and less than 2 mgd in water transfers. The 10 mgd of local supply committed to by the SFPUC upon adoption of the Phased WSIP would be provided through development of the local water supply improvements discussed below.

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<sup>985</sup> SFPUC, *Water Supply Improvement Program*, February 28, 2005.

<sup>986</sup> PBS&J, *Water Supply Availability Study of City and County of San Francisco*, October, 2009.<sup>986</sup> Ibid.

## ■ Local Water Supply Improvements

### Groundwater

Early in its history, San Francisco made significant use of local groundwater, springs, and spring-fed surface water and in the 1930s pumping rates from the groundwater basin on the west side of the City were reported to be up to a total of 6 mgd. However, after the development of surface water supplies in the Peninsula and Alameda watersheds and the subsequent completion of the Hetch Hetchy system in the 1930s, the use of groundwater for the water supply system has been minimal.<sup>987</sup>

San Francisco overlies all or part of seven groundwater basins, including the Lobos, Marina, Downtown, and South basins, located wholly within the City limits, and the Islais Valley, South, and Visitation Valley basins that extend south into San Mateo County. The portion of the Westside Basin aquifer located within San Francisco is commonly referred to as the North Westside Basin. Except for the Westside and Lobos basins, groundwater in the other basins is insufficient for municipal supply due to low yield<sup>988</sup>. Local groundwater is used for irrigation purposes in some parks, as well as non-potable purposes at the San Francisco Zoo and Golden Gate Park.

SFPUC is currently studying implementation of the San Francisco Groundwater Supply Project (SFGSP), created as part of the WSIP, to expand use of the local ground water source to provide ongoing supply and to improve reliability during drought, maintenance conditions, earthquake, or other emergency. The SFGSP proposes the construction of up to six wells and associated facilities in the western part of San Francisco to extract up to 4 mgd of water from the North Westside Groundwater Basin for distribution in the City. The extracted groundwater would be treated, disinfected, and blended in small quantities with surface water supplies before entering the municipal drinking water system. The environmental review for this project is expected to begin in November 2009.

### Recycled Water

From 1932 to 1981, San Francisco's McQueen Treatment Plant provided recycled water to Golden Gate Park for irrigation purposes. Due to regulatory changes, the City closed the McQueen plant and discontinued use of recycled water in Golden Gate Park. Currently, disinfected secondary-treated recycled water from the SFPUC's Southeast Water Pollution Control Plant is used on a limited basis for wash-down operations in the Combined Sewer Systems and is also provided to construction contractors for dust control and other construction purposes. Current use of recycled water for these purposes in San Francisco is less than 1 mgd.<sup>989</sup>

In March 2006, the SFPUC updated the Recycled Water Master Plan (RWMP) for the City. The 2006 RWMP identified where and how San Francisco could most feasibly develop recycled water in the City and provided strategies for implementing the recycled water projects that were identified. The SFPUC plans to continue to diversify San Francisco's water supply portfolio by increasing the use of local water sources, such as recycled water, groundwater, water conservation, and desalination.

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<sup>987</sup> SFPUC, *2005 Urban Water Management Plan for the City and County of San Francisco*, December 2005.<sup>987</sup> UWMP 2005.

<sup>988</sup> PBS&J, *Water Supply Availability Study of City and County of San Francisco*, October, 2009.<sup>988</sup> Ibid.

<sup>989</sup> Ibid.

The San Francisco Recycled Water Program currently includes the Westside, Harding Park, and Eastside Recycled Water Projects. The proposed projects would provide up to 4 mgd of recycled water to a variety of users in San Francisco. Recycled water will primarily be used for landscape irrigation, toilet flushing, and industrial purposes. The Harding Park Project has completed environmental review, and the Westside Project is expected to begin environmental review in late 2009 or early 2010. The WSIP contains funding for planning, design, and environmental review for the San Francisco Eastside Recycled Water Project.

The Westside Recycled Water Project would provide recycled water to several sites on the west side of San Francisco. The system would produce recycled water at a proposed recycled water treatment facility in Golden Gate Park and deliver the water to the San Francisco Zoo, Golden Gate Park, and Lincoln Park Golf Course for landscape irrigation and for non-potable uses at the Zoo and Golden Gate Park, including at the California Academy of Sciences. SFPUC has begun the project-specific environmental review for this project.

In addition, the SFPUC has partnered with the North San Mateo County Sanitation District (NSMCSD) to propose the Harding Park Recycled Water Project, which would use recycled water from the NSMCSD located in Daly City, to irrigate the Harding Park and Fleming Park golf courses in San Francisco. Completion of these projects are anticipated by the end of 2013 and would produce 2 million gallons of recycled water to irrigate Golden Gate Park, Fleming and Lincoln golf courses, Harding Park, and the San Francisco Zoo, along with commercial customers. Daly City is expected to complete the project-specific environmental review for the Harding Park Recycled Water Project in 2009. Currently, the SFPUC is conducting a recycled water demand assessment on the Eastside of San Francisco. The assessment examines the potential uses of recycled water for irrigation, toilet flushing, and commercial applications.

### **Water Conservation**

The SFPUC's demand management programs range from financial incentives for plumbing devices to improvements in the distribution efficiency of the system. The conservation programs implemented by the SFPUC are based on the California Urban Water Conservation Council's list of fourteen Best Management Practices (BMP) identified by signatories of the Memorandum of Understanding Regarding Urban Water Conservation in California, executed in 1991. Refer to the WSA (Appendix Q1) for an assessment of BMP progress to date.

In addition, the SFPUC is increasing its water conservation programs in an effort to achieve new water savings by 2018, consistent with the Phased WSIP. This program is based on the 2004 San Francisco Retail Water Demands and Conservation Potential report<sup>990</sup> (Demand Report) that identified potential water savings and implementation costs associated with a number of water conservation measures. These new conservation programs include high-efficiency toilet replacement in low-income communities and water efficient irrigation systems in municipal parks. With this expanded conservation program, the SFPUC anticipates reducing gross per household consumption (which includes both residents and non-

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<sup>990</sup> Hannaford and Hydroconsult, City and County of San Francisco Retail Water Demands and Conservation Potential, 2004.

residents) from 91.5 gallons per day (gpd) to 87.4 gpd by 2018, which would result in a conservation supply potential of approximately 4.0 mgd annually.

## ■ Water Treatment Capacity

Water from the Hetch Hetchy system is delivered to customers without filtration since the quality of this water supply has warranted a filtration exemption.<sup>991</sup> Water from the Alameda system is treated at the Sunol Valley Water Treatment Plant (WTP). Peninsula system water and any Hetch Hetchy or Alameda system water stored in Peninsula reservoirs is treated at the Harry Tracy WTP. These treatment plants have existing treatment capacities of 160 mgd and 120 mgd, respectively. To ensure treatment capacity into the future, the SFPUC is currently completing the environmental review of a proposal to upgrade the Sunol Valley WTP to reliably treat 160 mgd and increase the storage capacity of treated water at the Sunol Valley WTP. The Sunol Valley Water Treatment Plant (SVWTP) Expansion and Treated Water Reservoir project is located in an unincorporated portion of Alameda County in the Sunol Valley within the SFPUC's Alameda watershed. The SFPUC is also currently designing an expansion of the Harry Tracy WTP to reliably deliver 160 mgd, which would increase the total treatment capacity of the RWS to 320 mgd. The Harry Tracy WTP, located in unincorporated San Mateo County, California, near the Cities of San Bruno and Millbrae, proposes improvements including improving water quality, increasing water delivery capability, and strengthening facilities with seismic upgrades. These projects would further the delivery reliability goals identified by the SFPUC as part of the Phased WSIP by allowing the SFPUC to deliver water to meet winter demands during maintenance and emergency supply in the event of loss of the Hetch Hetchy system supply. In addition, SFPUC has initiated construction of the Tesla advanced disinfection treatment facility in Tracy, California, to provide advanced disinfection of water from the Hetch Hetchy system. When completed in 2011, the Tesla advanced disinfection treatment facility would be the nation's largest ultraviolet disinfection treatment plant.

## ■ Water Shortage and Dry-Year Planning

Prior to the late 1970s, droughts did not seriously affect the ability of the SFPUC to sustain full deliveries to its customers. However, as the 1987-1992 drought progressed and reservoir storage continued to decline, it became apparent that continued full deliveries could not be sustained. To provide some level of assurance that water could be delivered continuously throughout a drought (although at reduced levels), the SFPUC subsequently adopted a drought planning sequence and associated operating procedures that trigger different levels of water delivery reductions relative to the volume of water stored in SFPUC reservoirs.

Each year, during the snowmelt period, the SFPUC evaluates the amount of total water storage expected to occur throughout the RWS. If this evaluation finds the projected total water storage to be less than a level sufficient to provide sustained deliveries, the SFPUC may impose delivery reductions or rationing. The amount of the reduction is specified in contractual agreements between the SFPUC and wholesale

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<sup>991</sup> Current regulations providing for a filtration exemption under the Safe Drinking water Act are found in Surface Water Treatment Rule (54 FR 27486, June 29, 1989), as amended by the Long Term 1 Surface Water Treatment Rule (67 FR 1812, January 14, 2002) and the Long Term 2 Surface Water Treatment Rule (71 FR 654, January 5, 2006). EPA granted a filtration exemption to SFPUC in September 1993.

customers, as detailed in the existing Water Shortage Allocation Plan (WSAP). The WSAP provides specific allocations of available water between the retail and wholesale customers associated with different levels of systemwide shortages. For retail customers, the provisions of shortage allocations are identified in the Retail Water Shortage Allocation Plan (RWSAP). Under the RWSAP, during a shortage of between 5 to 10 percent (Stage 1), SFPUC retail customers would experience no reduction in deliveries, but the SFPUC would issue a voluntary rationing request to customers, alert customers to water supply conditions, remind them of existing water use prohibitions, and provide education on, and possible acceleration of, incentive programs. For a shortage of between 10 to 20 percent (Stage 2), retail customers would experience a 1.9 percent reduction in retail deliveries. During Stage 2, all Stage 1 measures would be implemented, customers would receive a specific allotment of water, and if a customer's water use goes above their allotment, they would be subject to an excess use flow restrictor device and shut-off of water. For shortages in excess of 20 percent (Stage 3), all Stage 2 measures are implemented and additional reductions in retail allotments would be implemented, as determined by the SFPUC.

## ■ Current and Future Water Supplies

As discussed above, the Phased WSIP allocates 81 mgd to retail customers. In addition, approximately 3.5 mgd of groundwater is provided from local groundwater basins (to San Francisco parks, the San Francisco Zoo, Golden Gate Park, and Castlewood). Per the Phased WSIP, an additional 10 mgd would be provided from local groundwater and recycled water projects and from conservation measures that reduce demand. Table III.Q-1 (SFPUC Estimated Retail Water Supplies, 2010–2030) provides an estimate of retail water supplies between 2010 through 2030, which projects an increase from 84.5 mgd to 94.5 mgd.

## ■ Current and Future Water Demand

To update the water supply and demand estimates provided in the 2005 update of the Urban Water Management Plan (UWMP), the SFPUC developed a Water Supply Availability Study (WSAS, included as an attachment to Appendix Q1). The WSAS incorporates new water supply information (per the Phased WSIP) and generates new estimates of future water demand for San Francisco. The future water demand estimates are based on the most current population and employment estimates, which include the Project and other major development proposals not anticipated in the 2005 UWMP.

The new demand estimates also incorporate the results of the 2004 Demand Report, which analyzed water demands associated with each retail customer sector and included development of a water use model. The water use model accounts for demand at the end use level (such as individual toilets and showers), and established water use rates for specific units, including multi-family residential households and employees, the latter of which is used to estimate non-residential water demands. The WSAS used an average of these water use rates over the next 20 years (2010–2030) to establish a water use rate for multi-family residential households of 98.7 gpd, and a water use rate for employees of 42.42 gpd. With these unit rates, future water demand can be estimated from changes in the number of residential households and/or employees in San Francisco.

**Table III.Q-1 SFPUC Estimated Retail Water Supplies, 2010–2030**

<i>Water Supply Sources</i>	<i>2010</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
<b>Current Water Supply Sources</b>					
SFPUC RWS (Surface water: Tuolumne River, Alameda & Peninsula) <sup>a</sup>	81.0	81.0	81.0	81.0	81.0
<b>Groundwater Sources</b>					
Groundwater (In-City Irrigation Purposes)	2.5 <sup>b</sup>	0.5 <sup>c</sup>	0.5 <sup>c</sup>	0.5 <sup>c</sup>	0.5 <sup>c</sup>
Groundwater at Castlewood <sup>d</sup>	1.0 <sup>d</sup>	1.0 <sup>d</sup>	1.0 <sup>d</sup>	1.0 <sup>d</sup>	1.0 <sup>d</sup>
Groundwater: Treated for Potable—Previously used for In-City Irrigation purposes <sup>e</sup>	0.0	2.0	2.0	2.0	2.0
<i>Groundwater Subtotal</i>	<i>3.5</i>	<i>3.5</i>	<i>3.5</i>	<i>3.5</i>	<i>3.5</i>
<i>Current Water Supply Subtotal</i>	<i>84.5</i>	<i>84.5</i>	<i>84.5</i>	<i>84.5</i>	<i>84.5</i>
<b>WSIP Water Supply Sources</b>					
Groundwater Development: Potable from SF GWSP (Westside Groundwater Basin) <sup>f</sup>	0.0	2.0	2.0	2.0	2.0
Recycled Water Expansion Irrigation <sup>g</sup>	0.0	4.0	4.0	4.0	4.0
Supply Conservation Program	0.0	4.0	4.0	4.0	4.0
<i>WSIP Supply Subtotal</i>	<i>0.0</i>	<i>10.0</i>	<i>10.0</i>	<i>10.0</i>	<i>10.0</i>
<b>Total Retail Supply (Current and WSIP Supplies)</b>	<b>84.5</b>	<b>94.5</b>	<b>94.5</b>	<b>94.5</b>	<b>94.5</b>

SOURCE: PBS&J, *Water Supply Assessment for the Proposed Candlestick Point—Hunters Point Shipyard Phase II Project*, October, 2009

- a. RWS surface water supplies are subject to reductions due to below-normal precipitation. This may affect dry-year supplies—model shows supply reduction occurs in year 2 of multiple-dry-year event (Source: SFPUC 2008 WSIP Phase Variant Supply limitation).
- b. Groundwater serves irrigation to Golden Gate Park, SF Zoo, and Great Highway Median.
- c. A Groundwater reserve of 0.5 mgd for irrigation purposes would remain as part of SFPUC's non-potable groundwater supply.
- d. Castlewood current and projected use remains unchanged over 20-year planning horizon.
- e. 2.0 mgd of groundwater treated and blended for Potable water supply purposes.
- f. 2.0 mgd of new groundwater developed as part of the new local supply target.
- g. 2.0 mgd of Recycled used for irrigation at Golden Gate Park, SF Zoo, Great Highway Median, and 2.0 mgd for other non-potable purposes.

To update future water demand, the WSAS compared the estimates of residential households and employees used in the 2005 UWMP with new population and employment forecasts provided by the San Francisco Planning Department<sup>992</sup>, which were designed to closely match the recently adopted Association of Bay Area Governments (ABAG) Projections 2009 target, and taking into account local knowledge of projects currently in various stages of the entitlement process. Updated water demand estimates were then generated, which included the increment of future growth that was not previously included in the 2005 UWMP estimates.

Estimates of water demand for major development proposals in San Francisco were based on information provided by project proponents (including Lennar Urban for the Project). The water demand estimates were independently reviewed by PBS&J and the SFPUC as part of the WSAS and the Water Supply Assessment (WSA) prepared for the Project and determined to be consistent with the demand rates developed for the 2004 Demand Report.<sup>993</sup>

<sup>992</sup> San Francisco Planning Department, *Projections of Growth by 2030*, July 9, 2009 (included as Appendix A to the Water Supply Availability Study).

<sup>993</sup> PBS&J, *Water Supply Assessment for the Proposed Candlestick Point—Hunters Point Shipyard Phase II Project*, October 2009.



Table III.Q-2 (Estimated Average Annual Retail Water Demand) provides an estimate of total SFPUC Retail Water Demands from 2010 through 2030, which incorporates the most recent new residential development estimates from 2015 through 2030, and assumes some development not previously included in the 2005 UWMP estimates. Total retail water demand, including Project demand, is estimated to increase from 91.81 mgd in 2010 to approximately 93.42 mgd by 2030.

<b>Table III.Q-2 SFPUC Estimated Average Annual Retail Water Demand</b>					
<b>Users, Facilities, and Entities</b>	<b>Projected Water Demand (mgd)</b>				
	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Residential Demand (Single and Multiple Family) <sup>a</sup>	44.70	43.80	43.20	42.90	42.90
New Residential Demand generated by Projects and Incremental Growth <sup>b,d</sup>	—	0.47	0.95	1.42	1.89
<i>Subtotal</i>	<i>44.70</i>	<i>44.27</i>	<i>44.15</i>	<i>44.32</i>	<i>44.79</i>
Non-Residential - Business/Industrial Demands <sup>c,d</sup>	30.21	30.52	30.83	31.14	31.73
<i>Subtotal</i>	<i>74.91</i>	<i>74.79</i>	<i>74.98</i>	<i>75.46</i>	<i>76.52</i>
Unaccounted-for System Losses	7.30	7.30	7.30	7.30	7.30
<i>Subtotal</i>	<i>82.21</i>	<i>82.09</i>	<i>82.28</i>	<i>82.76</i>	<i>83.82</i>
Other Retail Demands <sup>e</sup>	4.90	4.90	4.90	4.90	4.90
Lawrence Livermore Laboratory; Groveland CSD <sup>f</sup>	1.20	1.20	1.20	1.20	1.20
City Irrigation Demand <sup>g</sup>	2.5	2.5	2.5	2.5	2.5
Castlewood Community Demand <sup>h</sup>	1.0	1.0	1.0	1.0	1.0
<b>Total Retail Demand</b>	<b>91.81</b>	<b>91.69</b>	<b>91.88</b>	<b>92.36</b>	<b>93.42</b>

SOURCE: PBS&J, Water Supply Assessment for the proposed Candlestick Point/Hunters Point Shipyard Phase II project, October, 2009.

a. Residential Demands

b. Multiple Family Demand calculated as [2030 Incremental Growth of 0.24 mgd + (CP-HPS II 10,500 DU) 1.04 mgd + (TI-YBI 8,000 DU) 1.17 mgd + (Park Merced 8,900 total DU) 0.94 mgd = 3.40 mgd. With existing demand of 1.51 mgd at all three sites, net demand is (3.40 mgd – 1.51) 1.89 mgd.

c. Agriculture, Mining, Construction, Manufacturing, Transportation, Wholesale & Retail Trade, F.I.R.E., Services, Gov't including Builders – Contractors and Docks – Shipping, per 2009 ABAG Employment Projections updated dated from SF Planning (July 2009) Employment water demands calculated 42.42 gallons per employee per day.

d. Non-residential (jobs/employment) demands at major project sites were assumed to be contained in the 2009 ABAG Employment projections. Growth in demand is incrementally increased to reflect the growth in jobs over the 20-year planning horizon. To avoid double-counting the water demand associated with the 2009 SF Planning Non-Residential Employment Projections and the non-residential demand calculated in the developer estimates at each of the Project sites, the total water demand at each of the developments was adjusted to remove the non-residential demands. This study assumes all non-residential demand is accounted for in the 2009 SF Planning Non-Residential Employment Projections. Net change in water demand at the Project sites and the adjusted change in water demand without non-residential demand.

e. US Navy, SF International Airport, and other suburban/municipal accounts.

f. Lawrence Livermore Laboratories (0.8 mgd); Groveland CSD (0.4 mgd)

g. City Irrigation at Golden Gate Park, Great Highway Median and SF Zoo.

h. Castlewood Community demand served by wells in the Pleasanton well field.

i. Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals; this table is consistent with Table 4-7 of the WSA.

To assess the adequacy of current and projected future water supplies to meet estimated future demand, including the demand associated with major development proposals, including the Project, and other projected future growth (e.g., background growth from ABAG projections), the WSA included a comparison of retail water supply and demand. Table III.Q-3 (Comparison of Projected Water Supply and Demand for Normal, Single Dry, and Multiple Dry Years [mgd]) provides a comparison of the

projected future retail water supply and demand in varying hydrologic conditions over the 20-year planning horizon through 2030.

The deficit shown in 2010 is the result of the Phased WSIP, which restricts the SFPUC's allocation from the RWS supply to 81 mgd. Full development of the additional 10 mgd of new local supplies is projected to be available by 2015. However, current retail demand is much lower than the estimated 2010 demand in Table III.Q-3 (actual Fiscal Year 07/08 demand was 83.9 mgd).<sup>994</sup> If retail demand exceeds the available RWS supply of 81 mgd between 2010 and 2015, and total RWS deliveries exceed 265 mgd between 2010 and 2015, the Water Supply Agreement allows the SFPUC to purchase additional water from the RWS for retail customers in the SFPUC service area by paying an environmental surcharge (total RWS deliveries in FY07/08 were 256.7 mgd, which is 8.3 mgd below the 165 mgd watershed delivery goal).<sup>995</sup> After 2015, when the additional 10 mgd local supply is projected to be completed, the WSA shows no expected deficit in supply. The first phase of development of the Project is projected to be completed in 2017. It is expected, therefore, that the Project would not contribute to any deficiencies in supply experienced by the SFPUC between 2010 and 2015.

As shown in Table III.Q-3, after 2030, during the second and third year of a multiple dry-year period, the projected water supply would be slightly less than the estimated total retail demand, including demand associated with the Project. Thus, during multiple dry-year periods, the SFPUC would need to implement the provisions of the WSAP and RWSAP, which could include voluntary rationing or the curtailment of retail deliveries. With the implementation of the WSAP and RWSAP during multiple dry-year periods, existing and projected future water supplies would be sufficient to meet estimated future water demand.

### III.Q.3 Regulatory Framework

#### ■ Federal

##### ***Safe Drinking Water Act***

The basic regulations governing the RWS are associated with the federal and California *Safe Drinking Water Acts*. The federal *Safe Drinking Water Act*, passed in 1974 and amended in 1986 and 1996, is the nation's primary law regulating drinking water quality and is implemented by the US EPA. The Act authorizes the US EPA to set national health-based standards for drinking water and requires many actions to protect drinking water and its sources, including rivers, lakes, reservoirs, springs, and groundwater wells. In addition to source water protection, the Act also provides for treatment, monitoring, sampling, analytical methods, reporting, and public information requirements.

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<sup>994</sup> PBS&J, October 2009.

<sup>995</sup> PBS&J, October 2009.

**Table III.Q-3 Comparison of Projected Supply and Demand for Normal, Single Dry, and Multiple Dry Years (mgd)**

<i>Retail Supply and Demand</i>		<i>Normal Year</i>	<i>Single Dry Year</i>	<i>Multiple Dry Year Event</i>		
				<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
2010	RWS Supply <sup>a</sup>	81.00	81.00	81.00	79.50	79.50
	Groundwater Supply <sup>b</sup>	3.50	3.50	3.50	3.50	3.50
	<b>Total Retail Supply<sup>c</sup></b>	<b>84.50</b>	<b>84.50</b>	<b>84.50</b>	<b>83.00</b>	<b>83.00</b>
	Total Retail Demand <sup>d</sup>	91.81	91.81	91.81	91.81	91.81
	Surplus/(Deficit) <sup>e</sup>	-7.31	-7.31	-7.31	-8.81	-8.81
2015	RWS Supply <sup>a</sup>	81.00	81.00	81.00	79.50	79.50
	Groundwater <sup>f</sup>	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources <sup>g</sup>	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply<sup>c</sup></b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand <sup>d</sup>	91.69	91.69	91.69	91.69	91.69
2020	RWS Supply <sup>a</sup>	81.00	81.00	81.00	79.50	79.50
	Groundwater <sup>f</sup>	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources <sup>g</sup>	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply<sup>c</sup></b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand <sup>d</sup>	91.87	91.87	91.87	91.87	91.87
2025	RWS Supply <sup>a</sup>	81.00	81.00	81.00	79.50	79.50
	Groundwater <sup>f</sup>	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources <sup>g</sup>	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply<sup>c</sup></b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand <sup>d</sup>	92.36	92.36	92.36	92.36	92.36
2030	RWS Supply <sup>a</sup>	81.00	81.00	81.00	79.50	79.50
	Groundwater <sup>f</sup>	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources <sup>g</sup>	10.00	10.00	10.00	10.00	10.00
	<b>Total City Supply<sup>c</sup></b>	<b>94.50</b>	<b>94.50</b>	<b>94.50</b>	<b>93.00</b>	<b>93.00</b>
	Total Retail Demand <sup>d</sup>	93.42	93.42	93.42	93.42	93.42
	Surplus/(Deficit)	1.08	1.08	1.08	-0.42 <sup>h</sup>	-0.42 <sup>h</sup>

SOURCE: PBS&J, Water Supply Assessment for the proposed Candlestick Point/Hunters Point Shipyard Phase II project, October, 2009.

a. RWS Supply SFPUC Water Supplies

b. Groundwater Uses for In-City Irrigation and Castlewood.

c. Total Retail Supply from SFPUC Water Supplies

d. SFPUC Retail Demand

e. The deficit shown in 2010 is the result of reducing the RWS supply to 81 mgd as per the Phased WSIP Variant, without full development of the additional 10 mgd of new supplies. 10 mgd of new sources would be developed and available for use in SF by 2015. However, SF Retail demand is currently lower than projected (FY07/08 use was 83.9 mgd). If SF Retail demands exceed the available supply of 84.5 mgd between 2010 and 2015, the Water Supply Agreement allows the SFPUC to purchase additional water from the RWS. If combined Retail and wholesale deliveries exceed 265 mgd, the SFPUC Retail customers would be required to pay an Environmental Surcharge for deliveries over 81 mgd (Total RWS deliveries in FY07/08 were 256.7 mgd).

f. Groundwater Supplies at Castlewood and In-City Irrigation.

g. WSIP Supply Sources (Recycled Water (4.0 mgd; Groundwater (2.0 mgd Existing and 2.0 from NWGWP, and WSIP Water Efficiency and Conservation (4.0 mgd).

h. Deficit occurs in year 2 and 3 of multiple dry year event, SFPUC implements its Drought Year Water Shortage Contingency Plans - RWSAP and WSAP would be required to balance supply and demand under this projected shortfall.

Implementation and enforcement of both the federal and California *Safe Drinking Water Acts* are under the jurisdiction of the California Department of Public Health (CDPH), Division of Drinking Water and Environmental Management. Drinking water regulations are set forth in the California Code of Regulations, Titles 17 and 22.

The amended federal *Safe Drinking Water Act* established phases of regulation and a number of regulatory deadlines to address drinking water requirements. This amended Act is implemented through subsidiary rules for regulation of specific contaminants or for monitoring or treatment requirements (US EPA, 2007). The major US EPA drinking water regulations are listed below:

- Surface Water Treatment Rule
- Interim Enhanced Surface Water Treatment Rule
- Total Coliform Rule
- Stage 1 Disinfectants and Disinfection Byproducts Rule
- Stage 2 Disinfectants and Disinfection Byproducts Rule
- Long Term 1 Enhanced Surface Water Treatment Rule
- Long Term 2 Enhanced Surface Water Treatment Rule
- Variances and Exemptions Rule
- Lead and Copper Rule
- Radionuclides Rule
- Filter Backwash Recycling Rule
- Arsenic Rule
- Public Notification Rule

## ■ State

### ***Water Conservation Projects Act***

California's requirements for water conservation are codified in the *Water Conservation Projects Act of 1985* (Water Code Sections 11950–11954), as reflected below:

Section 11952(a). It is the intent of the Legislature in enacting this chapter to encourage local agencies and private enterprise to implement potential water conservation and reclamation project.

### ***Urban Water Management Planning Act***

Section 10610.4 of the *California Urban Water Management Planning Act* specifies that “Urban Water Suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.” The SFPUC prepared and adopted the current Urban Water Management Plan in December 2005.

### ***Water Code Sections 10910 et seq. (Senate Bill 610)***

Effective January 1, 2002, the State of California, through Senate Bill 610 (SB 610), adopted a requirement that a city or county, and the associated public water system, prepare a Water Supply Assessment (WSA) for projects that meet certain criteria, including (1) a project creating the equivalent

demand of 500 residential units, (2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space, and (3) a commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space. The Project meets the criteria for requiring a WSA because it meets all of the criteria listed above.

In an effort to streamline the water supply planning process within San Francisco, the SFPUC adopted resolutions in 2002 and 2006 to allow for all development projects requiring a WSA under SB 610 (qualifying projects) to rely solely on the adopted UWMP without having to go through the process of preparing individual WSAs. Because the Planning Department and Agency are currently engaged in planning for various proposed land development projects that go beyond the future developments considered in the 2005 UWMP update, the SFPUC concluded that its 2005 UWMP no longer accounted for every qualifying project in San Francisco. Therefore, until the 2010 UWMP is prepared, any qualifying projects not accounted in the 2005 UWMP, including the Project, would require preparation of a WSA that considers the SFPUC's current and projected supplies when compared to projected demands associated with new growth not covered in the 2005 UWMP. The WSA prepared for the Project is included in Appendix Q1.

### **Water Code Section 73504(b)**

*Water Code* 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.

## **■ Local**

### **San Francisco Green Building Ordinance**

To minimize the use and waste of energy, water, and other resources in the construction and operation of buildings, to provide a healthy indoor environment, and to reduce greenhouse gas emissions, in 2008 the Board of Supervisors adopted the Green Building Ordinance, which applies to newly constructed residential and commercial buildings and renovations to existing buildings. The Ordinance specifically requires a minimum reduction of 20 percent in potable water use, rising to a minimum of 30 percent reduction in potable water use by 2011 for high-rise residential buildings, mid-size commercial buildings, and large commercial buildings (as defined in the Ordinance). In addition, the Ordinance also requires a minimum reduction of 50 percent in the use of potable water for landscaping for high-rise residential, mid-size commercial, and large commercial buildings.

## **III.Q.4 Impacts**

### **■ Significance Criteria**

The CCSF and Agency have not formally adopted significance standards for impacts related to water, but generally consider that implementation of the Project would have significant impacts on this resource if it were to:

- Q.a 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

- Q.b Require new or expanded water entitlements and resources, if there are not sufficient water supplies available to serve the project from existing entitlements and resources<sup>996</sup>

## ■ Analytic Method

The analysis in this section focuses on the potential for a change in existing and projected water use as a result of Project implementation. The primary resources used for this analysis include the following technical documents: *Candlestick Point / Hunters Point Shipyard Phase II Water Demand Memorandum* (October 15, 2009) prepared by Arup; *Water Supply Assessment for the Proposed Candlestick Point—Hunters Point Shipyard Phase II Project* (October 2009), prepared by PBS&J; *Water Supply Availability Study of City and County of San Francisco* (October 2009) prepared by PBS&J; *SFPUC Urban Water Management Plan* (December 2005), prepared for the SFPUC; and the *Final Programmatic Environmental Impact Report for the Water System Improvement Program* (October 2008), prepared by the San Francisco Planning Department.

This section includes an evaluation of whether existing water treatment facilities have sufficient treatment capacity to serve the Project, and whether an adequate and reliable source of water would be available to serve the Project, both of which require an estimate of water demand that would result from Project implementation.

Estimates of water demand for the Project were developed for Lennar Urban by Arup<sup>997</sup> and are summarized in Table III.Q-4 (Project Water Demands Adjusted for Plumbing Codes and SF Green Building Ordinance [mgd]). Water demand for the Project was derived from an estimate of a historical benchmark demand, adjusted to account for current California Building Codes and an additional adjustment to account for the requirements of the San Francisco Green Building Ordinance, including the installation of ultra-low flow fixtures, the use of high-efficiency building equipment, and efficient landscape irrigation techniques. An independent analysis performed as a part of the WSA, which analyzed similar land uses and assigned a demand factor for each use, concluded that the demand estimates provided by Arup are consistent with SFPUC demand factors.

Current land uses within the Project site include residential (Alice Griffith Public Housing) and recreational (including the Candlestick Point State Recreation Area [CPSRA] and Candlestick Park stadium), and a mostly vacant former shipyard. According to water meter readings from the Project site, current water use is approximately 0.3 mgd.<sup>998</sup> Thus, based on a total estimated Project-related demand of 1.67 mgd (per Table III.Q-4) and current water use of 0.3 mgd from existing land uses, the net impact of the Project on water demand would be an increase of approximately 1.37 mgd.

Existing and projected future water supplies for SFPUC retail customers were compared with estimated future demand to determine whether water supplies would be sufficient to meet Project-related demands. The current status of ongoing water supply improvements was also assessed, to determine whether the anticipated future water sources would be available.

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<sup>996</sup> This standard has been slightly modified from the text found in CEQA Guidelines, Appendix G, for ease of comprehension.

<sup>997</sup> Arup, *Candlestick Point/Hunters Point Shipyard Phase II Water Demand Memorandum*, October 15, 2009.

<sup>998</sup> PBS&J, October 2009.

<b>Table III.Q-4 Project Water Demands Adjusted for Plumbing Codes and SF Green Building Ordinance (mgd)</b>			
<i>Land Use</i>	<i>Candlestick Point</i>	<i>Hunters Point Shipyard Phase II</i>	<i>Total</i>
Residential	0.61	0.22	0.83
Hotel	0.05	0.00	0.05
Office	0.04	0.02	0.06
R & D	0.00	0.36	0.36
Neighborhood Retail	0.02	0.02	0.04
Regional Retail	0.08	0.00	0.08
Community Uses	0.01	0.01	0.02
Football Stadium	0.00	0.02	0.02
Performance Venue	0.01	0.00	0.01
<i>Subtotal</i>	<i>0.82</i>	<i>0.65</i>	<i>1.47<sup>a</sup></i>
Parks and Open Space	0.06	0.15	0.21
<b><i>Total Demand</i></b>	<b><i>0.88</i></b>	<b><i>0.70<sup>a</sup></i></b>	<b><i>1.67<sup>a</sup></i></b>

SOURCE: Arup, Candlestick Point–Hunters Point Shipyard Phase II Water Demand Memorandum, October 15, 2009.

a. Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals used in this table. These entries are correct and consistent with Table 4-3 of the Water Supply Assessment.

The current and planned treatment capacity of existing water treatment facilities was also reviewed to determine whether sufficient capacity exists to provide water treatment service to the Project.

## ■ Construction Impacts

Significance Criterion Q.a, above, indicates that the Project would have a significant adverse effect if it would 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. The Infrastructure Plan for the Project would include a low-pressure water system, a reclaimed water system, an AWSS, and separate sanitary sewer and storm drainage facilities. Impacts of construction activities associated with the Project, including demolition and installation of new utility infrastructure, are discussed in Section III.D (Transportation and Circulation), Section III.H (Air Quality), Section III.I (Noise), Section III.J (Cultural Resources and Paleontological Resources), Section III.K (Hazards and Hazardous Materials), Section III.L (Geology and Soils), Section III.M (Hydrology and Water Quality), Section III.O (Public Services), and Section III.S (Greenhouse Gas Emissions) of this EIR. No new construction impacts beyond those identified in those sections would occur with construction of water conveyance or treatment infrastructure associated with the Project.

The water required for construction activities is assumed to be supplied by water trucks and/or existing sources. No construction-related impacts associated with the consumption of water would occur with the Project.

## ■ Operational Impacts

Although other sections of this EIR provide separate impact assessments for development at Candlestick Point and HPS Phase II, segregating the discussion of impacts on water treatment facilities and water supplies would not provide any additional meaningful information. Thus, for the purposes of clarity, this section only provides an assessment of Project impacts, which includes both components of the Project.

### **Impact UT-1: New or Expanded Water Entitlements and Resources**

**Impact UT-1      Implementation of the Project would not require water supplies in excess of existing entitlements or result in the need for new or expanded entitlements. (Less than Significant) [Criterion Q.b]**

Implementation of the Project would generate a total demand of approximately 1.67 mgd (per Table III.Q-4). This demand is based on an estimate of a historical benchmark demand, adjusted to account for current California Building Codes and the requirements of the San Francisco Green Building Ordinance, which would require the installation of ultra-low flow fixtures, use of high-efficiency building equipment, efficient landscape irrigation techniques, and provision of water-efficient plant materials. As current water use from existing land uses at the Project site is approximately 0.3 mgd, the net effect of the Project on water demand would be an increase of approximately 1.37 mgd.

The Phased WSIP allocates 81 mgd from the RWS to retail customers. An additional 3.5 mgd of groundwater is provided from local groundwater basins. An additional 10 mgd would be provided from additional groundwater and recycled water projects, and from conservation measures that reduce demand (which the SFPUC identifies as a conservation supply). Total SFPUC retail water supply is estimated to vary between 93 and 94.5 mgd, depending on hydrologic conditions (per Table III.Q-1). Total future retail demand, including Project-related demand, is projected to increase from 91.81 mgd in 2010 to 93.42 mgd in 2030 (per Table III.Q-2). At the time of the first phase of Project implementation, sometime after 2015, SFPUC projects that adequate supply would be available to satisfy all retail demand, including Project-related demand, under normal conditions.

A comparison of total retail water supply to estimated water demand (per Table III.Q-3) shows that after 2030, during multiple dry-year periods, the total retail water supply would be slightly less than estimated total demand, including demand associated with the Project. With the implementation of the WSAP and RWSAP during multiple dry-year periods, which could include voluntary rationing or other water conservation strategies, existing and projected future water supplies could accommodate estimated future water demand, including the Project-related demand of approximately 1.37 mgd. As discussed in the WSA, the SFPUC has approved and has made substantial progress towards the implementation of the water facility improvement projects identified in the WSIP. The SFPUC has received voter approval to fund the Phased WSIP program and has initiated bond sales to fund implementation of individual projects, which are in various stages of implementation, including subsequent environmental review, design, or construction.<sup>999</sup> Thus, there is substantial evidence that the SFPUC would implement the Phased WSIP facility projects described above, including the local water supply projects.

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<sup>999</sup> Per the *Water System Improvement Program Quarterly Report, Q4, FY 2008/2009* (dated August 20, 2009), (prepared by the SFPUC), as of July 1, 2009, two (2) projects are in the Planning Phase, eleven (11) projects are in the Design Phase, six



The local water supply projects, described in the setting, include: the San Francisco Groundwater Supply Project; the Westside Recycled Water Project; the Eastside Recycled Water Project, the Harding Park Recycled Water Project, and various conservation efforts. Collectively, these projects are estimated to provide approximately 10 mgd.<sup>1000,1001</sup> Of these projects, environmental review has been completed for the Harding Park Projects, and will soon be initiated for the other projects. The local water supply improvement projects were approved as part of the Phased WSIP and are included in the WSIP funding program. The SFPUC has initiated planning, environmental review, and design of several recycled water and groundwater projects and conservation programs are in place. Thus, there is substantial evidence that the additional water provided by those projects would be available to supplement retail water supplies.

As noted above, the SFPUC adopted the Phased WSIP, which phased implementation of the water supply program to provide an additional 20 mgd of supply to meet projected demand through 2018 and requires the SFPUC to re-evaluate water demands and water supply options by December 31, 2018 through 2030 to meet projected demand. The Project would not require water supplies in excess of existing entitlements or result in the need for new or expanded entitlements, and this impact is less than significant. No mitigation is required.

### ***Impact UT-2: Construction of New or Expansion of Existing Water Treatment or Conveyance Facilities***

**Impact UT-2      Implementation of the Project would not require or result in the construction of new or expanded water treatment facilities. The Project would require the expansion of an auxiliary water conveyance system to provide adequate water supply for firefighting to the Project site. (Less than Significant with Mitigation) [Criterion Q.a]**

SFPUC determined in developing the WSIP that while it was meeting its core mission to serve San Francisco and its Bay Area customers with reliable, high-quality and affordable water, a long-term program was needed to reliably meet its mission in the future. The WSIP identified facility projects that would allow it to meet water supply, delivery reliability, seismic safety and water quality goals. In adopting the Phased WSIP, the SFPUC committed to implementing all of the identified facility projects, all of which underwent programmatic environmental review in the WSIP PEIR. As explained earlier, two of those projects would assist the SFPUC in meeting delivery reliability goals established for its two treatment plants. These projects are now undergoing project-level environmental review. It also identified a facility to provide for advanced disinfection of water from the Hetch Hetchy system, a project now under construction.

In addition, per SFPUC approval of the Phased WSIP, the SFPUC is proceeding to develop an additional 10 mgd of local supply from local recycled water and groundwater projects and additional conservation

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(6) projects are in the Bid and Award Phase, five (5) projects are in the Construction Phase, two (2) projects in the Close-Out Phase, eight (8) projects are completed, one (1) project has not been initiated, and eleven (11) projects have multiple active phases. Available at: [http://sfwater.org/Files/Reports/01\\_RW\\_Program\\_Summary.pdf](http://sfwater.org/Files/Reports/01_RW_Program_Summary.pdf) Accessed September 28, 2009.

<sup>1000</sup> San Francisco Planning Department, Final Program Environmental Impact Report, Water Supply Improvement Program, October, 2008.

<sup>1001</sup> SFPUC, Urban Water Management Plan, 2005.

measures. The SFPUC is now in the planning and project-level review stage of these facility projects. Treatment requirements for these sources of water are included in the scope of those facility projects.

All of the projects identified above are planned for implementation irrespective of whether the Project is approved. As indicated in Table III.Q-3, water supply with the projects planned under the Phased WSIP would be sufficient in future years to meet normal demand, which includes Project demand. Implementation of the Project would not affect the treatment requirements of either of those sources of water. The groundwater and recycled water projects are in the planning and project-level environmental review phase now and are expected to be implemented before the first phase of the Project is expected to be completed. Implementation of water conservation measures, including those provided as part of the Project would reduce demand for water and would, therefore, not affect the treatment capacity of existing or proposed water treatment facilities.

As the current and planned facility projects under the Phased WSIP would provide for sufficient treatment capacity for the water to be supplied under the Phased WSIP and the Phased WSIP supply is sufficient to serve the Project, implementation of the Project would not require or result in the construction of new or expanded water treatment facilities, and this impact would be less than significant. No mitigation is required.

The Hunters Point Shipyard Reuse Environmental Impact Report (SCH #95072085, certified February 8, 2000) determined that the existing water system has insufficient pressure for adequate fire protection in certain portions of the Project site. The Project would expand the existing off-site AWSS by providing an AWSS loop at Candlestick Point that would connect to the planned extension of the existing off-site AWSS on Gilman Street from Ingalls Street to Candlestick Point. At HPS Phase II, the AWSS would be connected to the existing AWSS system at the intersection of Earl Street and Innes Avenue and at the Palou Avenue and Griffith Avenue intersection with a looped service along Spear Avenue/Crisp Road.

The following mitigation measure shall be implemented:

MM UT-2      *Auxiliary Water Supply System. Prior to issuance of occupancy permits, as part of the Infrastructure Plan to be approved, the Project Applicant shall construct an Auxiliary Water Supply System (AWSS) loop within Candlestick Point to connect to the planned extension of the off-site system on Gilman Street from Ingalls Street to Candlestick Point. The Project Applicant shall construct an additional AWSS loop on HPS Phase II to connect to the existing system at Earl Street and Innes Avenue and at Palou and Griffith Avenues, with looped service along Spear Avenue/Crisp Road.*

This AWSS would ensure the provision of adequate water for on-site fire-fighting purposes, and the Project would not require water supplies in excess of existing entitlements or result in the need for new or expanded entitlements for water to fight fires. The impact is less than significant with implementation of this mitigation measure.

## ■ Cumulative Impacts

The geographic context for an analysis of cumulative impacts to water resources is the service area of the Regional Water System (RWS) operated by the SFPUC. The past and present water supply and water treatment capacity in the RWS service area is described in the Setting section of this chapter, representing the baseline conditions for evaluation of cumulative impacts. Reasonably foreseeable development

includes future growth incorporated into the 2005 Urban Water Management Plan, and the updated demand projections included in the WSA (dated October, 2009) which included updated projections for San Francisco developed by San Francisco Planning Department (*Projections of Growth by 2030*, dated July 9, 2009).

Water in the Project area is provided by the SFPUC, which manages the RWS and provides wholesale water service to 27 Bay Area water agencies located in Alameda, San Mateo and Santa Clara Counties (wholesale customers), and retail water for the residents, businesses, and industries within the municipal boundaries of the City and County of San Francisco (and various other customers in San Mateo, Alameda, and Tuolumne Counties).

To enhance the reliability of the RWS, improve dry-year supplies, diversify the water supply portfolio, and meet projected wholesale and retail demand through 2030, the SFPUC developed the WSIP, which proposed a program of facility improvement and water supply improvement projects to accommodate a projected increase in annual average demand from 265 mgd to 300 mgd. The SFPUC subsequently adopted the Phased WSIP to implement the facility improvement projects that would meet public health, seismic safety, and delivery reliability goals, but with phased implementation of the water supply program, with an additional supply of 20 mgd from recycled water, groundwater and conservation projects proposed to meet projected demand through 2018. By December 31, 2018, the SFPUC must re-evaluate water demands and water supply options and allocate available water supplies to meet the demand through 2030.

Per the Phased WSIP, retail water supplies to San Francisco, including the Project area, are comprised of deliveries from the RWS, groundwater, and the identified local water supply improvement projects. With these sources, retail water supplies are estimated to vary between 93 and 94.5 mgd (as shown in Table III.Q-1), depending on hydrologic conditions. Total retail water demand, including demand from the Project, several major development proposals (as discussed in the WSA), and background growth from ABAG projections and the 2005 UWMP is estimated to increase from 91.81 mgd in 2010 to approximately 93.42 mgd by 2030 (per Table III.Q-2).

When average annual retail water supply and demand are compared (in Table III.Q-3), after 2030, during multiple dry-year periods, the total retail water supply would be slightly less than estimated total demand, including the cumulative demand associated with the Project, major development proposals, and background growth. During multiple dry-year periods, the SFPUC would need to implement the provisions of the WSAP and RWSAP, which could include voluntary rationing or the curtailment of retail deliveries. With the implementation of the WSAP and RWSAP during multiple dry-year periods, existing and projected future water supplies could accommodate cumulative future retail water demand.

Implementation of the Phased WSIP would ensure sufficient water supply and water treatment capacity for the Project and estimated current and future retail demand. Provision of an AWSS on site and connection to the existing off-site AWSS by implementation of mitigation measure MM UT-2 would ensure adequate water for firefighting purposes. As no additional water supply or water treatment capacity is needed to serve the Project and projected future development beyond the supply identified under the Phased WSIP, the Project would not make a considerable contribution to a cumulative impact on water supply. The Project's cumulative impact on water supply is less than significant.

## **Wastewater**

### **III.Q.5 Setting**

#### **■ San Francisco Combined Sewer System**

##### ***Project Site***

At Candlestick Point, the Candlestick Park stadium and Alice Griffith public housing site contribute to the Combined Sewer System, while the Candlestick Point State Recreation Area (CPSRA) and portions of the stadium parking lots have separate storm sewer systems. Stormwater at HPS Phase II does not flow to the City's Combined Sewer System, but is discharged to the Bay via separate stormwater system outfalls and overland flows.

##### ***Overview***

Most stormwater runoff in the City is collected via a Combined Sewer System, managed by the SFPUC. This system combines stormwater runoff and wastewater flows in the same network of pipes (Combined Sewer System), conveying flows to facilities where they are treated prior to discharge to the Lower Bay or Pacific Ocean through outfall structures along the shoreline. Discharges into the combined sewer are regulated under two individual National Pollutant Discharge Elimination System (NPDES) permits (waste discharge requirements [WDRs]) issued by the RWQCB as discussed in the Regulatory Framework. The City is divided into two major drainage areas: Oceanside and Bayside. The Project site is in the Bayside Drainage Area. This area is further divided into subbasins: North Shore, Channel, Islais Creek, Yosemite, and Sunnyside, all of which flow to the Southeast Water Pollution Control Plant (SWPCP). The North Point Wet Weather Treatment Facility (NPWWTF), located on Bay Street, operates only during wet-weather conditions to treat combined storm flows. Figure III.M-1 (Combined and Separate Storm Sewer System and Receiving Water Bodies) in Section III.M depicts the wastewater infrastructure that serves the City and the Project site, including an illustration of the areas that are currently served by the combined sewer and stormwater system and areas that are served by a separate sewer and stormwater system.

The capacity of the system, along with treatment and pumping capacities, is based on design criteria imposed by the RWQCB in the City's NPDES permits that were calculated for the purpose of protecting beneficial uses and achieving compliance with water quality standards, based on 70 years of annual rainfall data. The design criteria required construction of control facilities designed to store and treat enough wastewater to limit wet-weather discharges to an annual long-term average of 10, 8, 4, or 1, depending on the location of the discharge. In the Project vicinity, the wet-weather facilities have been designed and constructed to achieve a long-term annual average of 1 discharge to ensure that most wastewater receives secondary treatment (removal of settleable materials and partial removal of dissolved materials).

##### ***Dry Weather***

During dry weather, wastewater and any dry-weather runoff (e.g., irrigation runoff, discharge from underground springs, or pipe leaks) from the eastern portion of the City are conveyed to the SWPCP, at

Phelps Street between Jerrold and Evans Avenues, just northwest of the Project site (refer to Figure III.M-2 [Major Water Quality Features]). The SWPCP treats approximately 67 million gallons per day (mgd) during dry weather (approximately 80 percent of the City's total wastewater flow)<sup>1002</sup> to a secondary treatment standard, with a total capacity to treat 150 mgd. Secondary treatment uses pure oxygen to encourage growth of microorganisms that consume organic material and improve the purity of the wastewater. Wastewater is then put into a second round of settling tanks where the microorganisms are separated from the purified water. Effluent is disinfected and dechlorinated before discharge. Treated wastewater is then discharged through the Southeast Plant deep water outfall at Pier 80 or through the Quint Street outfall to the Islais Creek Channel.

The Combined Sewer System also includes the Bayside Wet Weather Facilities (BWVF), which consist of interconnected large underground rectangular tanks and tunnels with a series of baffles and weirs that are designed to remove settleable solids and floatables. During dry weather, the BWVFs transport combined stormwater and wastewater to the SWPCP.

### **Wet Weather**

At full wet-weather capacity, discharge at the Pier 80 outfall is maximized to 110 mgd; a blend of 100 mgd primary treatment and 10 mgd secondary treatment. The remaining 140 mgd receiving secondary treatment is discharged via the Quint Street shallow water outfall into Islais Creek Channel, which occurs an average of 600 hours per year.

The NPWWF is operated on a seasonal, as-needed basis to supplement the treatment capacity of the SWPCP. During larger storm events, excess flows that cannot be treated at the SWPCP are treated at the NPWWF, at 111 Bay Street, about 3.5 miles north of the Project site, which provides primary treatment and disinfection capacity for an additional 150 mgd of wet-weather flows. The treatment process at the NPWWF consists of primary sedimentation, clarification, floatables removal, disinfection, and dechlorination operations. It treats only wet-weather flow that consists of domestic and industrial wastewater mixed with stormwater runoff to a maximum capacity of 150 mgd. Treated flows from this facility are discharged through four deep-water outfalls, approximately 800 feet from the Bay shoreline and 18 feet below mean low water. Two of the deep-water outfalls terminate at the end of Pier 33, and two terminate at the end of Pier 35 on the northeastern Bay.

If the combined wet-weather flows exceed 150 mgd, the NPWWF can also treat an additional 100 mgd to a primary treatment standard (removal of settleable materials) plus subsequent disinfection and dechlorination.<sup>1003</sup> Wet weather flows that are treated to the primary standard (plus disinfection) are only discharged from the Southeast Pollution Control Outfall (Pier 80 outfall). San Francisco operates the only municipal wastewater facilities in California where, on an annual basis, approximately two-thirds of the stormwater runoff receives secondary treatment.

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<sup>1002</sup> San Francisco Public Utilities Commission, website:

[http://sfwater.org/mto\\_main.cfm/MC\\_ID/14/MSC\\_ID/117/MTO\\_ID/225](http://sfwater.org/mto_main.cfm/MC_ID/14/MSC_ID/117/MTO_ID/225), accessed July 22, 2009.

<sup>1003</sup> San Francisco Public Utilities Commission, 2008. *System Overview: Wastewater System Map*. Accessed online November 6, 2008 at: <http://sfwater.org>.

The Bayside Wet Weather Facilities, during wet-weather conditions, provide storage and treatment that is equivalent to wet weather primary treatment. During wet weather, the underground transport tunnels provide a total storage capacity of approximately 193 million gallons, while pumps continue to transfer combined wastewater and stormwater to the SWPCP. When the combined capacity of the SWPCP and the NPWWF is exceeded, the wet weather facilities retain storm flows for later treatment. The tanks allow floatable and settleable solid materials to be removed, similar to primary treatment processes. The materials retained in the storage and transport boxes are flushed to the treatment plants after storms.

This level of treatment meets the minimum treatment specified by the USEPA Combined Sewer Overflow Control Policy (CSO Policy) I50 FR 18688; April 11, 1994. In the event that the capacities of the SWPCP, the NPWWF, and wet weather facilities and storage structures are exceeded, the combined stormwater and sewage, after receiving the equivalent of wet weather primary treatment in the transport structures/boxes, is discharged into San Francisco Bay through any one of the 29 shoreline combined sewer overflow (CSO) structures. The outfalls associated with these CSO structures are very wide diameter pipes or box culverts. All solids that settle out in the storage/transport structures are flushed to the SWPCP after the rainstorm subsides.

During large storm events that cause the flow in the SWPCP to exceed 110 mgd, the complete filling of the treatment and storage capacities of the combined system cause excess flows to receive “flow-through treatment,” similar to primary treatment, to remove settleable solids and floatable materials. Flows are then discharged into the Bay, through any one of 29 CSO structures located along the City’s Bayside waterfront from Fisherman’s Wharf to Candlestick Point. The volume of a CSO discharge is a function of the storm intensity, storm duration, treatment rate, and available storage. CSO discharges typically consist of about six percent sewage and 94 percent stormwater.<sup>1004</sup> All solids that settle out in the storage/transport structures are flushed to the SWPCP after the rainstorm. There are six CSO structures in the vicinity of the Project site, in Yosemite Slough (South Basin) and Candlestick Cove. Figure III.M-2 in Section III.M shows the location of the CSO structures relative to the Project site.

Table III.M-1 shows a summary of CSO events that occurred in 2006 by discharges from the SWPCP, NPWWP, and BWWF. CSOs 040 through 043, which are adjacent to the Project site at Yosemite Slough and South Basin, had two CSO events per outfall. Treatment plant and CSO discharge points are shown on Figure III.M-2.

### **SFPUC Five-Year Wastewater Capital Improvement Program**

The SFPUC launched the Wastewater Enterprise Interim Capital Improvement Program (Interim CIP) to address the immediate needs of San Francisco’s wastewater system. These special projects are aimed at reducing flood risk, reducing wastewater odors, and improving treatment facilities. The Interim CIP addresses immediate critical needs while a long-term comprehensive capital plan is developed through the SFPUC’s strategy review. Several Interim CIP projects are currently under construction, including the Channel Pump Station Improvements Project, Southeast Wastewater Treatment Plant Gas Handling Improvements - Phase 2, Oceanside Wastewater Treatment Plant Aging Infrastructure Project

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<sup>1004</sup> City and County of San Francisco, Public Utilities Commission, and Port of San Francisco, 2009, op. cit.

(Ventilation Improvements), and the Southeast Wastewater Treatment Plant Digester Odor Improvement - Phase 1.

### ***Biosolids Environmental Management System***

Biosolids are nutrient-rich organic materials resulting from the biological and physical treatment of wastewater in a treatment facility. San Francisco produces over 80,000 tons of biosolids a year that are transported to landfills in Alameda, Contra Costa, and Solano counties and two land application sites in Solano and Sonoma counties. To ensure environmentally sound disposal of biosolids, San Francisco has committed to prepare and implement an Environmental Management System (EMS), a voluntary program that would implement best management practices developed by the National Biosolids Partnership for odor, traffic, noise, and dust control, as well as the management of nutrients.

### ***Bayside Systems and Facilities Operations Plan (2002)***

The Master Plan for wastewater management completed in 1971 and modified in 1982 included the Bayside Transport/Storage System (Bayside System), consisting of expansion of the SWPCP, completion of the Bayside Core System (Griffith Pump Station and Yosemite Facilities), and construction of the Sunnydale Facilities, Mariposa Facilities, and Islais Creek Facilities, each of which was completed at various times but all by 1997. The City's NPDES permit (see Regulatory Framework, below) requires the City to prepare a systems and facilities Operations Plan that will:

- Maximize the volume of wastewater treated at either the Southwest treatment plant or the North Point Wet Weather Facility and discharged via deep water outfalls, consistent with the hydraulic and treatment capacities of the Discharger's storage, transport, and treatment facilities
- Ensure that all discharges from the diversion structures are first baffled to reduce floatables volumes

The Bayside Systems and Facilities Operations Plan describes the operations strategy that will be implemented to meet these objectives.

### **■ Project Site Wastewater System**

Within Candlestick Point, the CPSRA and portions of the paved areas around the Candlestick Park stadium are served by separate wastewater and stormwater systems that drain to the Bay. Other portions of Candlestick Point, including the Alice Griffith Public Housing site and Candlestick Park stadium itself, currently contribute both wastewater and stormwater to the Combined Sewer System. The Project site is served by the Bayside Transport/Storage System in the southeast drainage area, which consists of the Hunters Point and Yosemite Transport Systems, Griffith Pump Station, and Sunnydale Transport and Pump Station Facilities.<sup>1005</sup> The storage/transport system holds the combined sewage and stormwater for later treatment at the wastewater treatment plant and is sized to accommodate both dry- and wet-weather flows. The storage/transport system provides some treatment by settling out solids and skimming of floatables. It is primarily used for storage during and after storms, but also provides storage in the event of a power failure. Catch basins collect stormwater runoff from City streets and discharge runoff into the

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<sup>1005</sup> City and County of San Francisco, Public Utilities Commission, Bayside Systems and Facilities Operations Plan, 2002.

Combined Sewer System. If the capacity of sewer pipes is exceeded during storms, excess flow is directed to the storage/transport boxes. Approximately one to ten times per year, a storm exceeds the capacity of the storage/transport box, and a discharge (CSO) occurs (refer to Section III.Q.5 [Setting]).

Sunnydale transport/storage box and pump station facilities are used only for wet weather. During wet weather, combined sewage is diverted from the gravity system to the transport system, with a storage volume of 5.7 million gallons, and then flows to the Sunnydale Pump Station, which has a capacity of 50 mgd.

Wastewater from Candlestick Point combines with flows from the Sunnydale Facilities in the Candlestick tunnel sewer prior to entering the Yosemite Transport System, then flowing to the Griffith Pump Station. The present average dry-weather flow through the Candlestick tunnel sewer entering the Yosemite Transport System is 6 mgd, including that from the Sunnydale watershed. The Yosemite Transport System and existing sewers have a storage volume of 11.5 million gallons and convey dry- and wet-weather flows from the Yosemite/Fitch area and Sunnydale area to the Griffith Pump station. The Griffith Pump Station receives all Sunnydale and Yosemite/Fitch discharges via gravity flow, which is then pumped to the Hunters Point tunnel sewer. Pumping capacities for the Griffith Pump Station are 10 mgd in dry weather and 120 mgd in wet weather. Dry-weather flows from the Griffith Pump Stations are relatively small.<sup>1006</sup> The South Basin and Hunters Point flows enter the SWPCP at Rankin Street.

Existing residential uses in Candlestick Point generate approximately 76,800 gpd<sup>1007</sup> of wastewater to the Combined Sewer System, while football games and other events at the Candlestick Park stadium generate up to 280,000 gpd<sup>1008</sup> of wastewater on event days (assuming a sold-out event). The volume of flows from the Alice Griffith Public Housing site and portions of the parking lots surrounding Candlestick Park stadium is unknown, as the SFPUC does not monitor volumes from individual land uses or areas. However, this flow would be included in the existing baseline flows routed to the SWPCP. Wastewater flows from the HPS Phase II site are minimal, as sewage lines are no longer in use in this area, with the exception of waste from the artists' studios. Based on meter data from January 2000 to August 2002, the HPS Phase II site generated an average of 0.154 mgd of wastewater flow. Thus, the majority of the HPS Phase II does not currently contribute notable wastewater to the Combined Sewer System. The Navy is removing the entire wastewater system at Hunters Point Shipyard as part of its environmental remediation program.

The Candlestick tunnel sewer has an average daily dry-weather flow of 2.5 mgd (1,736 gpm) and a design capacity of 50 mgd (34,722 gpm).<sup>1009</sup> The Hunters Point tunnel sewer has an average dry-weather flow of

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<sup>1006</sup> City and County of San Francisco, Public Utilities Commission, Bayside Systems and Facilities Operations Plan, 2002.

<sup>1007</sup> Calculated as 256 units and 300 gallons per day, using the residential wastewater generation factor from the *Candlestick Point/ Hunters Point Shipyard Infrastructure Concept Report* (2007) prepared by Winzler & Kelly Consulting Engineers.

<sup>1008</sup> Calculated as 70,000 seats (in football configuration) and 4 gallons per seat day per day, per the wastewater generation rate for stadium uses in the Final Environmental Impact Report for the Los Angeles Coliseum Renovation Project, November 21, 2003 (SCH# 1990011065).

<sup>1009</sup> City and County of San Francisco, Public Utilities Commission, Bayside Systems and Facilities Operations Plan, 2002.



6 mgd (including the 2.5 mgd from the Candlestick tunnel sewer) (4,167 gpm) and a design capacity of 120 mgd (83,333 gpm).<sup>1010</sup>

## III.Q.6 Regulatory Framework

In the Project site, water resources policies are administered by several agencies, including the RWQCB; the State Water Resources Control Board (SWRCB), and the US EPA. Development of the Project is subject to the federal *Clean Water Act*, the California *Porter-Cologne Water Quality Control Act* (Porter-Cologne Act), applicable *Water Code* sections (plans and policies adopted by the SWRCB and RWQCB); and permitting and licensing requirements that occur during development review by the City and County of San Francisco.

### ■ Federal

#### **Clean Water Act**

The 1972 amendments to the federal *Clean Water Act* (CWA) prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The RWQCB issue NPDES permits for stormwater and wastewater outfalls (point sources). Issued by the RWQCB in five-year terms, an NPDES permit contains discharge prohibitions, effluent limitations, and necessary specifications and provisions that ensure proper treatment, storage, and disposal of the waste. The permit often contains a monitoring program that establishes monitoring stations at effluent outfalls and receiving waters. NPDES permits are individually issued for point-source discharges, which usually refer to waste emanating from a single, identifiable location; a non-point source usually refers to waste emanating from diffuse locations. Stormwater is considered to be a non-point source if stormwater is discharged as overland flow, not from an identifiable location such as a pipe.

Discharges from the SWPCP, NPWWF, and BWWF, including CSOs, are regulated under the individual waste discharge requirements (NPDES Permit set forth in Order No. R2-2008-0007 and NPDES No. CA0037664). Stormwater discharges regulated under the NPDES program are discussed in Section III.M. Sheet/overland flow is a non-point source not regulated under the NPDES program.

### ■ State

Operation of the SWPCP is subject to regulations set forth by the SWRCB and California Water Code.

### ■ Local

#### **San Francisco General Plan**

The Environmental Protection chapter and the Community Facilities chapter of the *San Francisco General Plan* contain the following policies relating to wastewater:

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<sup>1010</sup> City and County of San Francisco, Public Utilities Commission, Bayside Systems and Facilities Operations Plan, 2002.

#### Environmental Protection

- |             |  |
|-------------|--|
| Objective 3 | Maintain and improve the quality of the Bay, ocean and shoreline areas.              |
| Policy 3.3  | Implement plans to improve sewage treatment and halt pollution of the Bay and ocean. |

#### Community Facilities

- |              |  |
|--------------|--|
| 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. |

### III.Q.7 Impacts

#### ■ Significance Criteria

The CCSF and Agency have not formally adopted significance standards for impacts related to wastewater, but generally consider that implementation of the Project would have significant impacts on these resources if it were to:

- Q.c Require or result in the construction of new wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Q.d Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Q.e Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board<sup>1011</sup>

#### ■ Analytic Method

Water use and wastewater flows are related. In general, wastewater is generated from indoor water uses, such as flushing the toilet, bathing, or cooking uses. Historical benchmark water demand by land use and end use were calculated for the Project and are described in Table 6 of the Water Demand Memorandum prepared by Arup on October 15, 2009 (refer to Appendix Q2). Sanitary sewer flows were determined utilizing wastewater generation percentages based on land use and end use water demand (refer to Table 7 of Appendix Q2). These factors were then adjusted to account for conformance with Green Building Ordinance requirements. Project wastewater estimates, shown in Table III.Q-5 [Project Wastewater Generation], were made based on estimated water demand in Table 7 of Appendix Q2 and consistent with PUC-recommended methodology. Parks and open space wastewater generation (runoff) is not included in this table, as it would not be conveyed off site to the sewer system.

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<sup>1011</sup> This standard has been slightly modified from the text found in CEQA Guidelines, Appendix G, for ease of comprehension.

<b>Table III.Q-5 Project Wastewater Generation</b>				
<i>Land Use</i>	<i>Estimated Wastewater Generation Expressed as % of Water Demand (or as otherwise specified)</i>	<i>Candlestick Point (mgd)</i>	<i>Hunters Point (mgd)</i>	<i>Total Project (mgd)</i>
Residential	95%	0.58	0.21	0.79
Regional Retail	57%	0.05	0	0.05
Neighborhood Retail	57%	0.01	0.01	0.02
Office	57%	0.02	0.01	0.03
Community Uses	57%	0.01	0.01	0.02
Research and Development	57%	0	0.21	0.21
Hotel	57%	0.03	0	0.03
Football Stadium	95%	0	0.02	0.02
Performance Venue	95%	0.01	0	0.01
<b>Total</b>		<b>0.71</b>	<b>0.47</b>	<b>1.18</b>

SOURCE: Arup, October 15, 2009.

Wastewater impacts were determined by comparing the estimated future wastewater flows to the capacity of off-site conveyance lines and the wastewater treatment plants to determine whether sufficient capacity exists or whether there is the need for additional wastewater conveyance or treatment systems. As discussed in Section III.M, stormwater from Alice Griffith Public Housing site, Candlestick Park stadium, and portions of parking lots surrounding Candlestick Park stadium would no longer contribute stormwater flows to the Combined Sewer System, which would increase the available capacity in the Candlestick tunnel sewer and Hunters Point tunnel sewers.

As noted, above, the Yosemite transport system and existing sewers have a storage volume of 11.5 million gallons. Although the current volume of stormwater flows from the Project site is not known, the increase in wastewater flows associated with development at Candlestick Point would likely be offset by the reductions in stormwater flows that would result from the installation of a separate stormwater collection and treatment system at Candlestick Point. However, for the purposes of this analysis, no credit is taken for the eliminated stormwater flows from the Candlestick Point site.

The Project would construct separate stormwater and wastewater systems. Thus, during wet weather, stormwater from the Project site would not enter the Combined Sewer System; the only Project flows that would enter the Combined Sewer System, during both dry and wet weather, would be wastewater. For the purposes of this analysis, dry-weather peak flows from the Project would be the same as wet-weather peak flows and there is no need to analyze stormwater flow volumes from the Project relative to conveyance capacity in this section (refer to Section III.M), for a full analysis of stormwater conveyance and treatment). Therefore, Project dry-weather peak flows are assumed to be the same as wet-weather flows.

Peak dry-weather flow capacities can be calculated by multiplying the average gallons-per-minute flow by a peaking factor. For purposes of this analysis, a conservative peaking factor of 3.0 was used, which yields a maximum flow capacity of 5,208 gpm for the Candlestick tunnel sewer and 12,501 gpm for the

Hunters Point tunnel sewer. The capacity of conveyance systems is analyzed by comparing maximum peak flows to the design capacity of the trunk line, expressed in gallons per minute (gpm). Wastewater treatment capacity is analyzed by comparing the daily treatment capacity of the plant, expressed in million gallons per day (mgd), with the existing conditions plus Project wastewater generation. Table III.Q-6 (Sewer Trunk Capacity and Project Maximum Peak Flows) illustrates the design capacity of the two sewer trunk lines serving the Project site, the existing average flow, the calculated existing maximum peak flow, the Project's contribution to the off-site conveyance infrastructure, and the remaining capacity (with the Project) of each of the two trunk lines. The Candlestick tunnel sewer flows into the Hunters Point tunnel sewer, and the data below reflect those combined flow volumes. However, because only conveyance capacity in the Candlestick tunnel sewer would require analysis, those data are also provided. Candlestick Point development discharges to the Candlestick and Hunters Point tunnel sewer, while discharges from the HPS Phase II site flow into the Hunters Point tunnel sewer only.

<b>Table III.Q-6 Sewer Trunk Capacity and Project Maximum Peak Flows</b>					
<b>Sewer Trunk</b>	<b>Design Capacity (gpm)</b>	<b>Existing Average Dry-Weather Flow<sup>a</sup> (gpm)</b>	<b>Existing Maximum Peak Dry-Weather Flow<sup>b</sup> (gpm)</b>	<b>Project Contribution—Maximum Peak Dry-Weather Flow<sup>c</sup> (gpm)</b>	<b>Remaining Peak Flow Capacity (gpm) With Project</b>
Candlestick tunnel sewer	34,722	1,736	5,208	1,479	28,035 <sup>e</sup>
Hunters Point tunnel sewer	83,333	4,167 <sup>d</sup>	12,501 <sup>d</sup>	979	69,853 <sup>f</sup>

SOURCE: Bayside Systems and Facilities Operations Plan, 2002.

a. Calculated as existing average dry-weather flow in mgd/24 hours/60 minutes x 1,000,000.

b. Calculated as existing average flow in gpm x peaking factor of 3.0.

c. Calculated as proposed average dry-weather flow in mgd/24 hours/60 minutes X 1,000,000 X peaking factor of 3.0.

d. These flows are inclusive of flows from the Candlestick tunnel sewer.

e. Calculated as design capacity less existing maximum peak flow less Project maximum peak flow, all in gpm. This calculation does NOT take credit for the existing uses at Candlestick Point (including Alice Griffith Public Housing, the RV park, and the stadium) that would be demolished on site and that currently contribute to the Candlestick tunnel sewer. Therefore, the actual remaining peak flow capacity of the Candlestick tunnel sewer with the Project would be somewhat greater than 28,035 gpm.

f. Calculated as design capacity less existing maximum peak flow less Project maximum peak flow, all in gpm. This calculation does NOT take credit for the existing uses on the HPS Phase II site that would be demolished that currently contribute wastewater flows to the Hunters Point tunnel sewer. Therefore, the actual remaining peak flow capacity of the Hunters Point tunnel sewer with the Project would be somewhat greater than 69,853 gpm.

Several planning studies, referenced in the introduction to this section, were prepared to identify the wastewater demand of the Project and the associated conveyance infrastructure necessary for the Project. This analysis relies on those estimates. As wastewater generation is a function of potable water demand, the baseline year for purposes of the wastewater analysis is 2009 to coincide with the date of the WSA that has been prepared for the Project.

Appendix Q1 describes two different methods to calculate wastewater generation: (1) percentage of water demand, and (2) by end use (e.g., toilets, laundry, process water, etc.). Utilizing the first method of calculating wastewater flows, the Project would generate a total of 1.18 mgd of wastewater; utilizing the second method, the Project would generate approximately 0.98 mgd. These calculations both assume full compliance with the Green Building Ordinance. The impact analysis that follows uses the more conservative estimate of 1.18 mgd of wastewater generated by the Project.

As required by the Green Building Ordinance, high-rise and large buildings would be required to reduce water use by 30 percent in the year 2011 from a benchmark level adjusted for code. This requirement would result in a corresponding decrease in wastewater generation. Methods to achieve this standard could include, but are not limited to, low-flow plumbing fixtures, waterless urinals, and dual-flush toilets. Additional requirements for high-rise residential and large commercial buildings include water-efficient landscaping to reduce potable water use by 50 percent. Wastewater volume estimates take these Green Building Ordinance requirements into account. Peak dry-weather flow was calculated by multiplying the average gallons-per-minute flow by a peaking factor. For purposes of this analysis, a conservative peaking factor of 3.0 was used.

## ■ Construction Impacts

Significance Criterion Q.c, above, indicates that the Project would have a significant adverse effect if it would require or result in the construction of new wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Impacts of construction activities associated with the Project, including demolition and installation of new utility infrastructure, are discussed in Section III.D, Section III.H, Section III.I, Section III.J, Section III.K, Section III.L, Section III.M, Section III.O, and Section III.S of this EIR. No new construction impacts beyond those identified in those sections would occur with construction of wastewater conveyance or treatment infrastructure associated with the Project.

## ■ Operational Impacts

### ***Impact UT-3: Wastewater Conveyance and Treatment***

The following discussion is organized to first address the adequacy of the wastewater conveyance system for Candlestick Point and HPS Phase II separately, followed by a discussion of the adequacy of the wastewater conveyance system and treatment facilities for the Project.

#### *Wastewater Conveyance*

#### **Impact of Candlestick Point**

**Impact UT-3a      Implementation of the Project at Candlestick Point would not require expansion of existing off-site wastewater conveyance facilities. (Less than Significant with Mitigation) [Criterion Q.d]**

#### *Dry-Weather Conditions*

Wastewater flows from the Candlestick Point site enter the Candlestick tunnel sewer, combining with flows from the Sunnydale Transport System, and enter the Yosemite Transport Facilities. The flows proceed through the Griffith Pump Station and then through the Hunters Point sewer tunnel, eventually combining with flows from the Islais Creek Transport System and entering the SWPCP. As indicated by Table III.Q-6, the Candlestick tunnel sewer has an average dry-weather flow of 2.5 mgd (1,736 gpm) and a design capacity of 50 mgd (34,722 gpm). The existing maximum dry-weather peak flow from the Candlestick Point site into the Candlestick tunnel sewer is 5,208 gpm (existing average daily flow times peaking factor). Projected maximum peak flows from the Candlestick Point portion of the Project, based

on a peaking factor of 3.0, would be approximately 1,479 gpm, as indicated by Table III.Q-6. The remaining peak flow capacity of the Candlestick tunnel sewer with the Project would be 28,035 gpm (design capacity less existing peak flow less Project peak flow contribution). This number does not take credit for the existing uses that would be demolished with implementation of the Project and would no longer contribute wastewater and stormwater flows to the Candlestick tunnel sewer, which means that the actual remaining peak flow capacity of the Candlestick tunnel sewer would be somewhat greater than 28,035 gpm.

The Hunters Point tunnel sewer has an existing average dry-weather flow of 6 mgd (4,167 gpm) and a design capacity of 120 mgd (83,333 gpm).<sup>1012</sup> Existing maximum peak flow in the Hunters Point tunnel sewer is estimated at 12,501 gpm (average daily flow times peaking factor). Projected maximum peak flows from Candlestick Point into the Hunters Point tunnel sewer, based on a peaking factor of 3.0, would be approximately 979 gpm, as indicated by Table III.Q-6. The design capacity of the Hunters Point tunnel sewer is 83,333 gpm. With the development of Candlestick Point, the Hunters Point tunnel sewer would have a remaining capacity of 69,853 (83,333 gpm design capacity less 12,501 gpm existing peak flow gpm less 979 gpm from Candlestick Point development) during peak dry-weather flow conditions. Therefore, the addition of approximately 979 gpm peak flow from the Candlestick Point development would be accommodated within the remaining capacity of the Hunters Point tunnel sewer.

The contribution of 1,479 gpm from the Candlestick Point development represents only 5 percent (1,479 gpm/29,514 gpm available capacity) of the available design capacity of the Candlestick tunnel sewer and 2 percent (1,479 gpm/70,832 gpm available capacity) of the Hunters Point tunnel sewer. This is a small percentage that could be accommodated by the existing infrastructure. No expansion of the existing off-site conveyance infrastructure would be required to accommodate wet-weather flows with the Project's contribution. As the existing conveyance infrastructure could accommodate the additional flows from the Candlestick Point development in addition to existing flows even during periods of peak flow conditions, no expansion of the off-site wastewater conveyance lines would be required as a result of development at Candlestick Point. The impact would be less than significant, and no mitigation is required.

### *Wet-Weather Conditions*

While Project development at Candlestick Point would no longer contribute stormwater to the Combined Sewer System, Project wastewater discharges during wet weather would combine with off-site wet-weather flows and contribute to overall wet-weather discharge volume in the system. If wet-weather volumes were to exceed the capacities of the available conveyance facilities, a CSO could occur.

The Technical Memorandum prepared by Hydroconsult Engineers (Appendix Q3) analyzed the potential impact of the Project on wet-weather flows and CSO events. Model results included the frequency, volume, and duration of CSO from the Yosemite Basin, the only basin that would be impacted by the proposed development, and the total CSO volume for the entire Bayside. Based on Project acreages, Hydroconsult calculated a baseline of 5.3 million gallons per year CSO for the Yosemite Basin (based on one event per year) and a total Bayside CSO of 890 million gallons per year. The analysis determined that

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<sup>1012</sup> City and County of San Francisco, Public Utilities Commission, Bayside Systems and Facilities Operations Plan, 2002.

future sanitary flows from Candlestick Point to the City's Combined Sewer System would increase slightly, by 0.518 mgd, due to the new development. However, the separate wastewater and stormwater systems would result in a *decrease* in CSO volume, frequency, and duration of CSO in the Yosemite Basin (3.1 million gallons per year compared to the baseline of 3.1 million gallons per year) and decrease in overall CSO volume for the entire Bayside Drainage Area from 890 million gallons per year to 877 million gallons per year because stormwater from the Project site would no longer flow into the Combined Sewer System. The proposed diversion of wet-weather flows away from the combined system would offset the increase in dry-weather flows. Based on this analysis, the overall flows in the Bayside system during wet weather would be less than existing conditions with implementation of the Candlestick Point development. It is possible that a temporary increase in CSO volume could occur during wet weather if Project structures are occupied and contribute wastewater prior to completion of the Project's separate stormwater and wastewater infrastructure. To reduce this impact, the following mitigation measure shall be implemented:

*MM UT-3a      Wet-Weather Wastewater Handling. Prior to approval of the Project's wastewater infrastructure construction documents for any new development, the Project Applicant shall demonstrate to the San Francisco Public Utilities Commission (SFPUC), in writing, that there will be no net increase in wastewater discharges during wet-weather conditions from within the Project Area boundary to the Bayside System compared to pre-Project discharges. This may be accomplished through a variety of means, including, but not limited to:*

- *Temporary on-site retention or detention of flows to the system*
- *Separation of all or a portion of the stormwater and wastewater system at Candlestick Point*

The contribution of the Candlestick Point development to the Bayside system represents a small percentage of its available capacity and would be accommodated by the existing infrastructure. Although development at Candlestick Point would increase wastewater flows (as intermittent flows from Candlestick Park stadium would be replaced by year-round flows from mixed-use development), the provision of separate stormwater and sewer systems would reduce overall wet-weather volumes to the Combined Sewer System. Mitigation measure MM UT-3a would ensure that there would be no net increase in wet-weather flows in the Combined Sewer System as a result of the Project that could result in a temporary increase in CSO volume. During wet weather, the temporary retention or detention of wastewater on site during wet weather or completion of the separate stormwater and wastewater systems for the Project would ensure that there would be no increase in the likelihood of a CSO event as a result of the Project. The impact on the Combined Sewer System would be reduced to less than significant.

## **Impact of Hunters Point Shipyard Phase II**

**Impact UT-3b      Implementation of the Project at HPS Phase II would not require expansion of existing off-site wastewater conveyance facilities. (Less than Significant with Mitigation) [Criterion Q.d]**

### *Dry-Weather Conditions*

HPS Phase II is served by separate wastewater and stormwater systems, and existing wastewater flows from this area are minimal, as sewage lines are no longer in use within HPS Phase II. Thus, HPS Phase II does not currently contribute substantial wastewater to the Combined Sewer System. Based on meter

data from January 2000 to August 2002, the HPS Phase II site generated an average of 0.154 mgd (106.9 gpm) of wastewater flow. Thus, the majority of the HPS Phase II does not currently contribute notable wastewater to the Combined Sewer System.

Based on estimated potable water use and the generation factors described, above, development at HPS Phase II would generate approximately 0.6 mgd of wastewater flows during operation. Wastewater generated at HPS Phase II would be transported via the new or expanded conveyance systems within the Project site and existing mains to the SWPCP.<sup>1013</sup> Wastewater from the HPS Phase II site flows into the Hunters Point tunnel sewer. The Hunters Point tunnel sewer has an existing average dry-weather flow of 6 mgd (4,167 gpm) and a design capacity of 120 mgd (83,333 gpm).<sup>1014</sup> Existing maximum peak flow in the Hunters Point tunnel sewer is estimated at 12,501 gpm (average daily flow times peaking factor). Projected maximum peak flows from HPS Phase II into the Hunters Point tunnel sewer, based on a peaking factor of 3.0, would be approximately 979 gpm (0.47 mgd/24 hours/60 minutes x 1,000,000 times 3.0). The design capacity of the Hunters Point tunnel sewer is 83,333 gpm. With the Project, the Hunters Point tunnel sewer would have a remaining capacity of 69,853 gpm during peak dry-weather flow conditions. Therefore, the addition of approximately 979 gpm peak flow from the HPS Phase II development would be accommodated within the remaining capacity of the Hunters Point tunnel sewer.

The contribution of 979 gpm from the HPS Phase II development represents only 1.2 percent of the total design capacity of the tunnel. This is a negligible percentage, and flows from the HPS Phase II site would be accommodated by the existing infrastructure. No expansion of the existing off-site conveyance infrastructure would be required to accommodate dry-weather flows with the contribution from development at HPS Phase II. As the existing conveyance infrastructure could accommodate the additional flows from the HPS Phase II development in addition to existing flows even during periods of peak flow conditions, no expansion of the off-site wastewater conveyance lines would be required as a result of HPS Phase II. The impact would be less than significant and no mitigation is required.

### *Wet-Weather Conditions*

While Project development at HPS Phase would not contribute stormwater to the Combined Sewer System, Project wastewater discharges during wet weather would combine with off-site wet-weather flows and contribute to overall wet-weather discharge volume in the system. If wet-weather volumes were to exceed the capacities of the available conveyance facilities, a CSO could occur.

The Technical Memorandum prepared by Hydroconsult Engineers (Appendix Q3) analyzed the potential impact of the Project on wet-weather flows and CSO events. Hydroconsult determined that future sanitary flows from the HPS Phase II development to the City's Combined Sewer System would increase slightly by 0.236 mgd. However, the results of hydrologic modeling assuming the proposed separate wastewater and stormwater systems indicate a *decrease* in CSO volume, frequency, and duration of CSO in the Yosemite Basin and a decrease in overall CSO volume for the entire Bayside Drainage Area because stormwater from the Project site would no longer flow into the Combined Sewer System. The proposed

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<sup>1013</sup> *Candlestick Point/ Hunters Point Shipyard Infrastructure Concept Report* (June 30, 2009, revised July 22, 2009) prepared by Winzler & Kelly Consulting Engineers.

<sup>1014</sup> City and County of San Francisco, Public Utilities Commission, Bayside Systems and Facilities Operations Plan, 2002.



diversion of wet-weather flows away from the combined system would offset the increase in dry-weather flows. In addition, mitigation measure MM UT-3a would ensure that there would be no increase in CSO flows as a result of the Project by providing temporary detention or retention of wastewater on site during wet weather or completion of the separate stormwater and wastewater systems for the Project. The impact on the Combined Sewer System would be reduced to less than significant.

### **Combined Impact of Candlestick Point and Hunters Point Shipyard Phase II**

**Impact UT-3                      Implementation of the Project would not require expansion of existing off-site wastewater conveyance or treatment facilities. (Less than Significant with Mitigation) [Criterion Q.d]**

#### *Wastewater Conveyance*

##### *Dry-Weather Conditions*

The Candlestick Point development would discharge a maximum peak flow of 1,479 gpm to the Candlestick tunnel sewer, which has an existing unused capacity of 28,035 gpm in dry weather. This flow would combine with a maximum peak flow of 979 gpm from the HPS Phase II into the Hunters Point tunnel sewer. The total maximum peak Project flows of 2,458 gpm would combine in the Hunters Point tunnel sewer, which has an existing unused capacity of 69,853 gpm in dry weather. This represents 3.5 percent of the available capacity of the Hunters Point tunnel sewer, which could be accommodated by the existing off-site infrastructure.

##### *Wet-Weather Conditions*

Hydroconsult Engineers determined that the total net increase in wastewater from the Project site would equal 0.754 mgd, and that there would be a decrease in CSO volume, frequency, and duration of CSO in the Yosemite Basin and a decrease in overall CSO volume for the entire Bayside Drainage Area because stormwater from the Project site would no longer flow into the Combined Sewer System. The proposed diversion of wet-weather flows away from the combined system would offset the increase in dry-weather flows. Based on this analysis, the overall volumes in the Bayside system during wet weather would be less than under existing conditions with implementation of the Project. It is possible that a temporary increase in CSO volume could occur during wet weather if Project structures are occupied and contribute wastewater to the Combined Sewer System prior to completion of the Project's separate stormwater and wastewater infrastructure. Mitigation measure MM UT-3a would ensure that there would be no increase in CSO flows as a result of the Project by providing temporary detention or retention of wastewater on site during wet weather or completion of the separate stormwater and wastewater systems for the Project. The impact on the Combined Sewer System would be reduced to less than significant.

#### *Wastewater Treatment*

Based on estimated potable water use and utilizing the percentage factors as described in Table III.Q-5, development at Candlestick Point would generate approximately 0.71 mgd of wastewater. Development of HPS Phase II would generate approximately 0.47 mgd of wastewater. The SWPCP currently treats approximately 67 mgd during dry-weather conditions and has a capacity to treat 150 mgd to the secondary treatment standard. The net increase in dry-weather wastewater flows with the Project would

represent only 1.4 percent of the remaining dry-weather treatment capacity (1.18 mgd/83 mgd) and 0.8 percent of the overall treatment capacity of the SWPCP (1.18 mgd/150 mgd).

The current remaining treatment capacity of the SWPCP would accommodate the increase in wastewater flows from the Project development. As noted, overall flows during wet weather would decrease, indicating that the proposed diversion of wet-weather flows away from the combined system would offset the increase in dry-weather flows, assuming completion of Project utility infrastructure prior to Project occupancy. Based on this analysis, the overall volumes in the Bayside system during wet weather would be less than under existing conditions with implementation of the Project. It is possible that a temporary increase in CSO volume could occur (which could affect the capacity of the SWPCP for treatment) during wet weather, as noted, above. Mitigation measure MM UT-3a would reduce this impact to less than significant by providing temporary detention or retention of wastewater on site during wet weather or completion of the separate stormwater and wastewater systems for the Project. Thus, the Project would not result in any net increase in CSO volume in the Bayside system during wet weather. A less-than-significant impact to existing off-site treatment facilities would occur.

#### **Impact UT-4: Wastewater Treatment Requirements of the RWQCB**

**Impact UT-4      Implementation of the Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant) [Criterion Q.e]**

As discussed in Impact UT-3 above, the Project development would incrementally contribute wastewater during dry and wet-weather events to the Combined Sewer System operated by the SFPUC, but overall, wet-weather volumes would decrease in the Bayside system with construction of the Project's separate stormwater and wastewater systems. The SWPCP, the NPWWF, and the BWWF are required to comply with the WDRs set by the RWQCB, which specify the discharge requirements for those facilities.

As discussed in the Regulatory Framework above, the NPDES permit system requires that all existing and future municipal and industrial discharges to surface waters within the City be subject to specific discharge requirements. Wastewater from the Project would be treated at the SWPCP wastewater treatment plant and BWWF. The SFPUC, which operates the SWPCP wastewater treatment plant and BWWF, is required to comply with permit requirements set by the RWQCB, which specify the discharge requirements for the facility. These extensive requirements are codified in Order No. R2-2008-0007 for NPDES Permit No. CA0037664 and prohibit, among other things, exceedance of dry-weather flow of 84.5 mgd and discharge of any untreated wastewater to any waters of the United States, including the Bay. Compliance with any applicable permit requirements, as monitored and enforced by the SFPUC, would ensure that the Project would not exceed the applicable wastewater treatment requirements of the RWQCB. In addition, the Project would not cause the City to exceed the requirements of the NPDES permit for the reasons previously stated and because the flows during wet weather would actually decline compared to existing flows from the Project site. This impact would be less than significant. No mitigation is required.

## ■ Cumulative Impacts

The geographic context for an analysis of cumulative impacts to wastewater treatment and conveyance facilities is the watershed that utilizes the Candlestick Point and Hunters Point tunnel sewers and contributes wastewater to the SWPCP and potentially the NPWWF and BWWF during wet weather. The past and present development in the City is described in the Setting section of this chapter, representing the baseline conditions for evaluation of cumulative impacts. For wastewater conveyance, reasonably foreseeable development includes future projects that would be served by the Bayside Transport/Storage System, as described in Section III.Q.5 of this section. For wastewater treatment, the cumulative projects would include all reasonably foreseeable future development in the Bayside Drainage Area that would utilize the SWPCP, NPWWDF, and BWWF.

### **Wastewater Conveyance Capacity**

Cumulative projects in the Bayside Drainage Area would contribute both additional wastewater and additional stormwater to the Bayside System, which could exceed its capacity. As noted above, the Bayside Systems and Facilities Operations Plan is intended to implement strategies to meet the objectives expressed in the Plan, which include maximizing the volume of wastewater treated at the SWPCP or NPWWF consistent with their capacities. Any cumulative projects that would result in wastewater and/or stormwater flows that exceed the capacity of the Bayside system would be inconsistent with the objectives of the Operations Plan and would result in a potentially significant impact on wastewater conveyance.

The Project would construct a separate stormwater and wastewater system on site and would only contribute wastewater to the Bayside System. Peak-flow capacities of the Bayside System are adequate to convey the wastewater generated by the Project, which would only represent 3.5 percent of the remaining available capacity of the Bayside conveyance system. Wet-weather flow volumes would be reduced compared to existing conditions because the stormwater that currently flows from the Project site into the combined system would be offset by the proposed separated stormwater and wastewater system on site. Because there would be adequate dry-weather conveyance capacity to transport wastewater from the Project and because the total wet-weather volume in the Bayside system with the Project would be less than under current conditions, it would have no impact and, regardless of future contributions to CSOs from other projects, the Project's contribution would not be cumulatively considerable. Mitigation measure MM UT-3a would ensure that there would be no increase in CSO flows as a result of the Project by providing temporary detention or retention of wastewater on site during wet weather or completion of the separate stormwater and wastewater systems for the Project. The Project's cumulative impact would be less than significant.

### **Wastewater Treatment Capacity**

Wastewater from the Project site is treated at the SWPCP. The SWPCP has a design capacity of 150 mgd to secondary treatment standards, with the ability to treat an additional 100 mgd during wet weather to primary treatment standards. The SWPCP currently processes an average flow of 67 mgd, with a remaining secondary treatment capacity of 83 mgd. Cumulative projects in the watershed would contribute to the overall demand for wastewater treatment by the SWPCP.

The SWPCP can accommodate the maximum additional 1.18 mgd of wastewater generated by the Project without requiring any expansion of existing facilities. Development of cumulative projects within the watershed, including the Project, is not expected to generate additional quantities of wastewater beyond the current capacity of the SWPCP. The existing and future wastewater flows in combination with Project flows would not exceed the capacity of existing infrastructure and would not require or result in the construction of new or expanded wastewater conveyance facilities or expansion of existing facilities, other than those on site, for which construction impacts have been comprehensively analyzed in this EIR. Therefore, the Project's cumulative impact would be less than significant.

### **Compliance with Waste Discharge Requirements**

The NPDES permit system requires that all existing and future municipal and industrial discharges to surface waters within the City of San Francisco be subject to specific discharge requirements. The Project would not result in the discharge of untreated wastewater to any surface waters. Operational discharges would be sent through the Project's on-site sewer system that connects to the City's Combined Sewer System. Wastewater generated at the Project site would ultimately be treated at the SWPCP. The SWPCP is required to comply with its associated waste discharge requirements, which set the levels of pollutants allowable in water discharged from any facility. Related projects would be required to follow all local and regional rules and regulations pertaining to wastewater treatment compliance. Consequently, there would be no cumulative problem to which the Project could contribute. The Project's cumulative impact would be less than significant with regard to compliance with waste discharge requirements.

### **Solid Waste**<sup>1015</sup>

## **III.Q.8 Setting**

### **■ Collection, Transfer, and Disposal**

Municipal solid waste collection, recycling, and disposal within the City is managed by SF Recycling Incorporated, a private company and subsidiary of Norcal Waste Systems, Incorporated. Residential and commercial solid waste generated at the Project site is collected by Sunset Scavenger Company, which delivers it to the SF Recycling Center. There, the solid waste stream is sorted to remove recyclables and organic materials. Organic waste is sent to the Jepson Prairie composting facility, which has the capacity to process approximately 300 tons per day, or approximately 5,200 tons of food waste (food scraps) from commercial premises and 2,000 tons of green waste per month.

Municipal solid waste remaining after sorting is currently transported to the Altamont Landfill in Livermore. Altamont Landfill serves a number of jurisdictions, including several East Bay cities such as Oakland, Alameda, Emeryville, and Richmond; however, San Francisco is the largest single contributor to the landfill. In 1988, the City of San Francisco entered into an agreement with what is now Waste Management of Alameda for the disposal of 15 million tons of solid waste at Altamont. Through August

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<sup>1015</sup> Hazardous wastes are discussed in Section III.K (Hazards and Hazardous Materials).

1, 2009, the City has used 12,579,318 tons of this capacity. The City projects that the remaining capacity would be reached no sooner than August 2014 (assuming an average of 467,000 tons a year disposal).<sup>1016</sup>

The City has issued a Request for Qualifications to solicit bids for a new contract to accommodate the City's disposal capacity beyond the expiry of the current agreement. The City has identified three landfills that have the capacity to meet the City's future needs and is in the final stages of the selection process that will result in an agreement for ratification by the Board of Supervisors no later than early 2010. The agreement will be for an additional 5 million tons of capacity, which could represent 20 or more years of capacity for San Francisco's waste. Future agreements will be negotiated as needed for San Francisco's waste disposal needs.

In 2007, the volume of waste contributed by San Francisco represented approximately 41 percent of the total waste interred at this facility. The landfill's total capacity is 62 million cubic yards, of which 73.7 percent (45.7 million cubic yards) is remaining as of August 2009.<sup>1017</sup><sup>1018</sup> According to the California Integrated Waste Management Board (CIWMB) Solid Waste Information (SWIS) database, the landfill would reach capacity in January 2032 if disposal continues at current rates; however, the Altamont Landfill is currently scheduled for closure on January 1, 2029.<sup>1019</sup>

## ■ Hazardous Waste Disposal

Refer to Section III.K for a full discussion of the regulatory framework for the handling, transport, and disposal of hazardous materials in California. Section III.K also analyzes safety risks as a result of handling, transport, or disposal of hazardous materials. This section focuses on hazardous waste disposal capacity.

Hazardous waste in the Bay Area is treated by registered Treatment, Storage, and Disposal facilities (TSDs). Several counties in the Bay Area have TSDs. For example, Alameda County has considerable hazardous waste treatment capacity (99,280 tons), between Evergreen Oil in Newark and AERC of Hayward. Marin County has one TSD, Photo Waste Recycling. San Mateo County has one large TSD. Santa Clara County has six TSDs. The City and County of San Francisco have no TSDs. In 2006, no San Francisco hazardous waste generators exported over 1,000 tons of hazardous wastes.<sup>1020</sup> However, in 2007, 44,222 tons of inorganic solid wastes (likely lead-contaminated building materials and soil) were removed from the Presidio, a former military base. The hazardous wastes generated in San Francisco in 2007 totaled 50,214 tons, an unusually large number because of the activities at the Presidio.

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<sup>1016</sup> E-mail communication with David Assman, City of San Francisco, Department of the Environment, October 19, 2009.

<sup>1017</sup> California Integrated Waste Management Board, 2009. *Active Landfill Profile for Altamont Landfill & Resource Recovery (01-AA-0009)*. Available online at: <<http://www.ciwmb.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=1&FACID=01-AA-0009>> (accessed August 24, 2009).

<sup>1018</sup> Landfill capacity is measured in cubic yards, since landfill capacity is more a function of volume than weight. Densities of constituents of municipal solid waste vary, while municipal solid waste is tracked in tons. For purposes of this analysis, known densities of materials types are utilized to calculate the amount of solid waste that the City contributes to the Altamont Landfill in cubic yards.

<sup>1019</sup> Phone communication with David Assman, City of San Francisco, Department of the Environment. August 11, 2009.

<sup>1020</sup> Bay Area Hazardous Waste Management Facility Allocation Committee, *Hazardous Waste Generation and Treatment Trends, San Francisco Bay Area, 2006 and 2007 Manifest Data*, May 2009.

There is no State agency that establishes a ceiling on the amount that a hazardous waste treatment facility can process in a year, although some treatment facilities are regulated by Air Quality Management District Permits, which may limit capacity. All regional TSDs have capacity that exceeds the actual amounts of wastes that they treat.<sup>1021</sup> However, it should be noted that the treatment processes locally available do not match the treatment processes needed (these processes may include combustion or incineration, which is used to destroy hazardous organic constituents and reduce the volume of waste, disposal of liquid hazardous waste in underground injection wells) in the region. Therefore, many tons of hazardous waste are treated either elsewhere in California or other states. The Bay Area Hazardous Waste Management Facility Allocation Committee has determined that the prohibitive costs of siting a new hazardous waste treatment facility make it unlikely that a new facility would open in the Bay Area, but notes that Evergreen Oil has recently expanded its recycling capacity.

In 2007, waste generators in the nine counties of the Bay Area transported 568,156 tons of hazardous waste for off-site treatment. Of this amount, 305,594 tons (slightly over half) were “industrial wastes.” The remainder included one-time wastes such as asbestos or contaminated soils, or may have been double-counted. The most common wastes generated in 2007 from the Bay Area included inorganic solids (such as lead paint waste or refining wastes), waste oil, and waste solvents. Of the 305,594 tons, roughly 17 percent (51,650 tons) was treated in the Bay Area, 79 percent was treated in California, and the remainder went to Utah and Nevada.

For household hazardous waste, SF Recycling & Disposal, Inc. operates a permanent facility for residents to safely dispose of the hazardous waste generated from their homes. The most common wastes received are leftover paint, motor oil from cars, thinners, spray cans, and old garden products, such as pesticides and fertilizers. SF Recycling & Disposal also operates the Artist-In-Residence Program, which uses art to inspire people to recycle more and conserve natural resources. The company provides selected local artists with the opportunity to create art using materials they gather from San Francisco's refuse.

## ■ Construction Waste

Under the City and County of San Francisco's Construction and Demolition (C&D) Ordinance, effective July 1, 2006, at least 65 percent of C&D debris (such as wood, metal, concrete, asphalt, and sheetrock) taken from a site must go to a registered construction recycling facility and cannot go to a landfill. This mandatory ordinance maximizes the recycling of mixed construction and demolition debris and applies to all commercial and residential indoor and outdoor construction projects, including repairs, improvements, additions, remodeling, and demolitions. The ordinance also requires that all mixed C&D debris, transported off site, must be hauled by a registered transporter, and be taken to a registered facility that can process mixed C&D debris, thereby diverting a minimum of 65 percent of the material from landfill. SF Recycling & Disposal operates a registered facility specifically designed to recycle construction debris. Similarly, Section 1304C.1.3.4 of the City's Green Building Ordinance, which was effective January 1, 2009, requires documentation to ensure that at least 75 percent of a Project's construction debris is diverted).

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<sup>1021</sup> Bay Area Hazardous Waste Management Facility Allocation Committee, *Hazardous Waste Generation and Treatment Trends, San Francisco Bay Area, 2006 and 2007 Manifest Data*, May 2009.

## ■ Recycling and Diversion

### **Waste Generation and Diversion Trends**

According to the CIWMB, San Francisco households generate approximately one pound of solid waste per resident per day, while commercial uses generate approximately 4.7 pounds per employee per day.<sup>1022</sup> In 2008, the City produced approximately 594,732 tons of solid waste altogether.<sup>1023</sup>

Approximately 72 percent of the City's total waste stream, by volume, was diverted in 2008.<sup>1024</sup> Of the wastes that were not diverted, the City estimates that up to 65 percent of the total volume consists of readily recyclable or compostable materials, such as paper and food scraps.<sup>1025</sup> The remainder of the wastes consists of materials such as disposed household items and furniture, hazardous wastes, and construction wastes. The City has prepared a number of strategies, discussed below, to divert additional solid waste and achieve citywide diversion goals.

### **Zero Waste Strategies**

The City plans to achieve a 75 percent landfill diversion by 2010 and full (100 percent) waste diversion by 2020 (refer to Regulatory Framework, below). The City encourages residents and businesses to pre-sort recyclables, compostable wastes (food scraps and yard waste), and garbage into separate curbside collection containers; sponsors regular public outreach events to educate San 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. On June 9, 2009, the City Board of Supervisors approved an ordinance that would make recycling and composting mandatory for residential and commercial uses. These and similar strategies would be utilized to achieve the City's overall waste reduction goals.

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<sup>1022</sup> California Integrated Waste Management Board, 2008. *Jurisdiction Profile for City of San Francisco*. Accessed online at: <<http://www.ciwmb.ca.gov/Profiles/Juris/JurProfile1.asp?RG=C&JURID=438&JUR=San+Francisco>> (accessed November 5, 2008).

<sup>1023</sup> <http://www.ciwmb.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=438&JUR=San+Francisco> (accessed October 18, 2009).

<sup>1024</sup> This figure is a preliminary estimate and represents the most recent data available. California Integrated Waste Management Board, 2008. *Jurisdiction Profile for City of San Francisco*. Accessed online at: <<http://www.ciwmb.ca.gov/Profiles/Juris/JurProfile1.asp?RG=C&JURID=438&JUR=San+Francisco>> (accessed November 5, 2008).

<sup>1025</sup> City of San Francisco, *Waste Characterization Study: Final Report*. 2008.

## ■ Existing Project Site Solid Waste Generation

Based on CIWMB solid waste generation factors, residential and commercial uses at Candlestick Point currently generate approximately 1,469 tons of solid waste annually.<sup>1026</sup> Events at Candlestick Park stadium generate approximately 74 tons of solid waste per event<sup>1027</sup> for a total estimated generation of approximately 1,038 tons annually (assuming fourteen sold-out events per year). The existing Hunters Point Shipyard artists' studios generate approximately 274 tons of operational solid waste annually.<sup>1028</sup> Current total solid waste generation from the Project site is approximately 2,781 tons annually, approximately 0.4 percent of the City's annual solid waste generation of approximately 594,732 tons per year in 2008.

## III.Q.9 Regulatory Framework

### ■ Federal

With the exception of determining where disposal sites are located and operational standards, there are no applicable federal laws, regulations, or policies that pertain to solid waste.

### ■ State

At the state level, the management of solid waste is governed by regulations established by the CIWMB, which delegates local permitting, enforcement, and inspection responsibilities to local enforcement agencies. In 1997, some of the regulations adopted by the SWQCB pertaining to landfills (Title 23, Chapter 15) were incorporated with CIWMB regulations (Title 14) to form Title 27 of the California Code of Regulations (CCR).

### **California Integrated Waste Management Act**

In 1989, the Legislature adopted the *California Integrated Waste Management Act of 1989*, which established an integrated waste management hierarchy that consists of the following approaches in order of importance: (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal. The law also required that each county prepare a new Integrated Waste Management Plan. The Act further required each city to prepare a Source Reduction and Recycling Element (SRRE) by July 1, 1991. Each SRRE includes a plan for achieving a solid waste goal of 25 percent by January 1, 1995, and 50 percent by January 1, 2000 (based on a 1989 baseline). A number of changes to the municipal solid waste diversion requirements under the Integrated Waste Management Act were adopted, including a revision to the statutory requirement for 50 percent diversion of solid waste. Under these provisions, local governments were required to divert at least 50 percent of all solid

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<sup>1026</sup> The square footage of existing uses is not known; therefore, per employee generation factor is used. Calculated according to the following formula using solid waste generation factors from CIWMB, 2008: [1,113 residents (5 lbs/day) + 529 employees (4.7 lbs/day)] (365 days/year) divided by 2000 lbs/ton.

<sup>1027</sup> Calculated according to a waste generation factor of 2.23 pounds per seat, adjusted for a 5 percent "no show" factor (95 percent of 70,000 seats), then divided by 2000 lbs per ton and multiplied by 14 annual events, as described in Table III.Q-8 (Project Solid Waste Generation).

<sup>1028</sup> Calculated according to the following formula using waste generation factors from CIWMB, 2008: [300 persons (5 lbs/day)(365 days/year)] divided by (2000 lbs/ton).



waste on and after January 1, 2000. Some progress has been made. Under Project Recycle, the number of state facility recycling programs has increased from 150 in 1991 to more than 1,800 today; and the amount of material recycled during this period has expanded from 2,000 tons a year to more than 63,000 tons a year. Nevertheless, the overall level of performance trails far behind the percentages of local jurisdictions striving to meet the requirements of the Act. To address this need, 1999 legislation established state agency diversion mandates of 25 percent in 2002 and 50 percent in 2004, requiring each agency to also adopt an integrated plan to achieve the mandates. The CIWMB is now assisting agencies in developing their plans. The CIWMB is the driving force behind the state's Green Building Task Force, whose goal is to institutionalize sustainable building practices as part of state construction projects in an efficient, practical, and cost-effective manner.<sup>1029</sup>

## ■ Local

### ***San Francisco Board of Supervisors Resolution Number 679-02***

Resolution 679-02, adopted by the San Francisco Board of Supervisors in September 2002, adopted a citywide landfill diversion goal of 75 percent by the year 2010 and a long-term zero waste (100 percent diversion) goal. The San Francisco Department of the Environment passed Resolution 002-03-COE in March 2003, setting a target date of 2020 for achieving zero waste.

### ***Construction and Demolition Debris Recovery Ordinance***

Projects that require demolition of an existing structure must submit a waste-diversion plan to the Director of the San Francisco Department of the Environment as required by the City's Construction and Demolition Debris Recovery Ordinance (Ordinance 27-06, Chapter 14, *San Francisco Environment Code*). The waste-diversion plan must demonstrate that 65 percent or more of the total construction and demolition debris produced as the result of the Project (such as wood, metal, concrete, asphalt, and sheetrock) is diverted from landfill interment.

### ***Green Building Ordinance***

On August 5, 2008, the City adopted the *San Francisco Building Code* (SFBC), Chapter 13C, "green building codes" for new construction and for renovations of existing structures, consistent with the GHG reduction measures in the SFCAP. The new green building standards in SFBC Chapter 13C are to be phased in by 2012. At 2012, the ordinance specifically requires newly constructed commercial buildings over 5,000 square feet (sf), residential buildings over 75 feet in height, and renovations on buildings over 25,000 sf, to be subject to LEED® Gold (or an equivalent standard), which makes San Francisco the city with the most stringent green building requirements in the nation. The ordinance identifies cumulative benefits through the year 2012 which include reducing construction and demolition waste by 700 million pounds and increasing the valuations of recycled materials by \$200 million.

New projects would be evaluated on a point system, with credit given for materials used in the building, the location of the building site, and water and energy efficiencies. The new codes focus on water and energy conservation, recycling, and reduction of carbon emissions. They apply to most buildings in the

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<sup>1029</sup> <http://www.calepa.ca.gov/about/history01/ciwmb.htm>. Accessed September 30, 2009.

City, including residential projects of all sizes, new commercial buildings, and renovations of large commercial spaces. Large residential and commercial buildings would be evaluated under the Leadership in Energy and Environmental Design (LEED)<sup>®</sup> or GreenPoint Rated green building certification rating system. Medium and small residential construction would use the GreenPoint rating system, which is less stringent.

### **Mandatory Recycling and Composting Ordinance**

In June 2009, the San Francisco Board of Supervisors passed Ordinance 100-09, a universal recycling and composting ordinance that requires all residences and commercial businesses in San Francisco to separate their refuse into dedicated bins for recyclables, compostables, and trash. This ordinance adds Chapter 19, Sections 1901 through 1912, and is entitled Mandatory Recycling and Composting Ordinance, amending the *San Francisco Public Works Code* by amending Sections 291, 291.1, 291.2, 291.4, 291.7, 291.11, 291.12, 291.15, 291.17, and 293.1, and by repealing current Sections 291.9 and 291.16 and adding a new Section 291.16, providing enforcement mechanisms and penalties for violations. According to the ordinance, recyclables, compostables, and trash may not be mixed in a single bin or placed in a bin designated for another form of refuse. Building owners or managers are required to maintain appropriate, color-coded, labeled containers in convenient locations, and educate tenants, employees, and contractors, including janitors, on how to separate materials. Failure to comply with these policies would result in fines; however, fines would not be assessed until 2011, allowing for gradual implementation of the new program.

### **Waste Disposal Agreement, Altamont Landfill and Resource Recovery Facility**

The City has an agreement with the Altamont Landfill, the primary landfill serving the City, to match or exceed the waste-diversion thresholds required in Alameda County. The Alameda County Integrated Waste Management Plan (Goal 2, Objective 2.1) has a diversion goal of 75 percent of the solid waste generated within its municipalities by 2010.

### **San Francisco General Plan**

The *San Francisco General Plan* contains the following policies within the Community Facilities chapter relating to solid waste:

- Objective 10      Locate solid waste facilities in a manner that will enhance the effective and efficient treatment of solid waste.

## **III.Q.10 Impacts**

### **■ Significance Criteria**

The CCSF and Agency have not formally adopted significance standards for impacts associated with solid waste, but generally consider that implementation of the Project would have significant impacts on these resources if it were to:

- Q.f    Be served by a landfill with insufficient permitted capacity to accommodate Project-related solid waste disposal needs

Q.g Fail to comply with federal, state, and local statutes and regulations related to solid waste

## ■ Analytic Method

To determine the amount of solid waste generated by the Project, solid waste generation factors identified by the CIWMB are applied to the Project's land uses. Construction-related solid waste results from demolition of existing structures and infrastructure (including asphalt and concrete) and waste from excess building materials. To determine solid waste impacts associated with implementation of the Project, estimated future solid waste generation amounts are compared to the total anticipated remaining capacity at the Altamont Landfill to determine whether adequate capacity exists. The baseline year for purposes of the solid waste analysis is 2009, which is when data for the Altamont Landfill were collected from the CIWMB. The Project is further analyzed for its compliance with statutes and regulations related to solid waste.

## ■ Construction Impacts

### ***Impact UT-5: Construction Solid Waste and Permitted Landfill Capacity***

Up to 37,500 tons of solid waste would be produced during construction of new buildings and infrastructure. As shown in Table III.Q-7 (Estimated Demolition Debris), it is estimated that approximately 876,195 tons of construction waste would be produced during building demolition and 95,590 tons of construction waste would be produced during road demolition (these data include off-site infrastructure improvement debris). A total of 971,785 tons of construction waste would be produced during building and road demolition over the Project build-out period.

### **Impact of Candlestick Point**

**Impact UT-5a      Construction at Candlestick Point, including demolition of existing facilities, would not generate construction-related solid waste that would exceed the capacity of landfills serving the City and County of San Francisco. (Less than Significant with Mitigation) [Criterion Q.f]**

It is anticipated that the Project would be constructed in phases beginning in 2010, with full build-out by 2029, which represents an approximately 19-year construction period; however, as indicated by Figure II-16 (Proposed Site Preparation Schedule), all demolition activities would be concluded by 2024 in Candlestick Point.

Construction debris would be generated by the demolition and removal of existing structures and utility infrastructure at Candlestick Point and the construction of new residential and commercial space and associated infrastructure. Construction of the Candlestick Point development would generate approximately 424,681 tons of mixed construction debris over the construction period, or approximately 44 percent of total Project C&D debris.

<b>Table III.Q-7 Estimated Demolition Debris</b>					
	<b>Concrete/Asphalt<sup>a</sup> (tons)</b>	<b>Wood<sup>b</sup> (tons)</b>	<b>Steel<sup>c</sup> (tons)</b>	<b>Misc. Debris<sup>d,e</sup> (tons)</b>	<b>Total (tons)</b>
<b>Candlestick Point</b>					
Building Demolition	212,361	26,611	104,250	55,150	398,372
Road Demolition	2,021	0	33	24,255	26,309
<i>Subtotal</i>	<i>214,382</i>	<i>26,611</i>	<i>104,283</i>	<i>79,405</i>	<i>424,681</i>
<b>Hunters Point Shipyard Phase II</b>					
Building Demolition	179,652	137,572	74,480	86,119	477,823
Road Demolition	36,950	0	0	32,331	69,281
<i>Subtotal</i>	<i>216,602</i>	<i>137,572</i>	<i>74,480</i>	<i>118,450</i>	<i>547,104</i>
<b>Total</b>	<b>430,984</b>	<b>164,183</b>	<b>178,763</b>	<b>197,855</b>	<b>971,785</b>

SOURCE: Lennar Urban, 2009.

- a. Concrete/asphalt debris can be sized and recycled on site as pipe bedding or road base.
- b. Wood debris can be chipped and sent to the local landfill for disposal.
- c. Scrap steel can be recycled off site.
- d. Miscellaneous debris including glass, asphalt, plastic, etc would be transported and disposed of at a local landfill.
- e. Asphalt included in Miscellaneous Debris may be recycled.
- f. Quantity estimates are approximate. Pre-demolition surveys need to be performed to confirm size of structures and building material types.

Sustainable construction practices are an important part of the Project's overall waste management strategy. The Project Applicant has balanced cut and fill on the site to the maximum extent feasible to minimize the need to dispose of excavation materials off site. The use of imported topsoil would be minimized by utilization of green waste and site-based soils to create topsoil. Modern methods of construction and off-site manufacturing would be used to eliminate waste. The Project would also implement a system for the production of secondary aggregate from inert C&D waste in a manner that conforms to the requirements of local standards and processors of inert C&D waste.

In order to reduce the amount of construction waste generated by the Project and diverted in landfills, a Waste Diversion Plan shall be prepared. The Waste Diversion Plan would include a process to measure the types and quantities of waste produced and include requirements for regular monitoring of performance against waste reduction and recovery targets by the Project Applicant or an appointed site waste management contractor. Each of these strategies, and/or other suitable strategies, would be implemented through mitigation measure MM UT-5a, which requires that 75 percent of construction waste is diverted from landfill(s):

*MM UT-5a*      Construction Waste Diversion Plan. *The Project Applicant shall submit a Construction Waste Diversion Plan to the Director of the San Francisco Department of the Environment demonstrating a plan to divert at least 75 percent of or more of the total construction and demolition debris produced as the result of the Project (such as wood, metal, concrete, asphalt, and sheetrock) from landfill interment, which is required by the City's Green Building Ordinance. The Plan shall be submitted and approved by the Director of the San Francisco Department of the Environment before the issuance of building permits. This Plan shall include (1) identification of how much material resulting from demolition of existing facilities could be reused on site (e.g., existing asphalt and concrete could be removed, crushed, reconditioned, and reused as base material for new roadways and parking lots); (2) the extent to which*

*materials could be sorted on site (e.g., through piecemeal demolition of selected facilities to extract recyclable materials), (3) the amount of material that would be transported to an off-site location for separation; and (4) the amount of materials that cannot be reused or recycled and would be interred at a landfill, such as the Altamont Landfill in Livermore.*

Some construction and demolition debris would be reused on site (e.g., existing asphalt in parking areas would be removed, crushed, reconditioned, and reused as base material for new roadways and parking lots), while other materials would be transported off site for separation. SF Recycling & Disposal operates a registered facility specifically designed to recycle construction debris from the City. Even if no construction and demolition debris were to be reused on site, diverting 75 percent of construction solid waste pursuant to mitigation measure MM UT-5a would mean that approximately 318,511 tons of construction waste would be transported to SF Recycling & Disposal or other facilities, if needed, available to recycle construction debris. Approximately 106,170 tons of construction debris (over the entire construction period) that cannot be recycled would be transported to the Altamont Landfill. The remaining capacity of the Altamont Landfill as of August 2009 is 45.7 million cubic yards. At an average density of 1 ton per cubic yard,<sup>1030</sup> 106,170 tons would equal 106,170 cubic yards. The contribution from construction of the Candlestick Point development would represent 0.2 percent of the available remaining capacity.

At current disposal rates, the Altamont Landfill would be expected to reach capacity in January 2032; however, its permit expires three years earlier, in January 2029.<sup>1031</sup> Demolition activities, which generate construction debris, are expected to conclude in 2024 at Candlestick Point, five years before the landfill is expected to close. Further, the City requires the diversion of at least 75 percent of construction waste, as also required by mitigation measure MM UT-5a, which would reduce the amount of waste interred at the landfill. In total, the construction waste sent to Altamont Landfill from activities at Candlestick Point would represent only 0.2 percent of the landfill's remaining capacity. Further, the City continues to actively explore various waste-reduction strategies with the goal of moving towards zero waste. If the City achieves this goal, the impact of construction of the Project on solid waste would be further reduced. The impact of construction waste generated by development of Candlestick Point on the capacity of the Altamont Landfill would be less than significant.

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<sup>1030</sup> Densities of construction waste vary from between 400 pounds/cubic yard for wood material to 2400 pounds/cubic yard for loose asphalt and concrete Available online at: <<http://www.ciwmb.ca.gov/LEAtraining/Resources/CDI/Tools/Calculations.htm>>, Accessed: August 24, 2009.

<sup>1031</sup> CIWMB, 2009.

## Impact of Hunters Point Shipyard Phase II

**Impact UT-5b      Construction at HPS Phase II, including demolition of existing facilities, would not generate construction-related solid waste that would exceed the capacity of landfills serving the City and County of San Francisco. (Less than Significant with Mitigation) [Criterion Q.f]**

At HPS Phase II, new development would begin with the construction of the 49ers stadium, scheduled for completion during the 2014–2017, or alternately by 2022, time period.<sup>1032</sup> Demolition activities at the rest of HPS Phase II would begin in 2010 and conclude by 2021, as indicated by Figure II-16.

Construction debris would be generated by the demolition and removal of existing structures and utility infrastructure within the HPS Phase II site and the construction of new structures and infrastructure. The HPS Phase II component of the Project is estimated to generate approximately 547,104 tons of total construction debris, which represents approximately 56 percent of the total C&D debris that would be generated by the Project. Some construction and demolition debris would be reused on site (e.g., existing asphalt in parking areas would be removed, crushed, reconditioned, and reused as base material for new roadways and parking lots), while other materials would be transported off site for separation. Materials that cannot be reused or recycled are anticipated to be transported to the Altamont Landfill. At a 75 percent diversion rate, approximately 136,776 tons would be transported to the landfill.

The remaining capacity of the Altamont Landfill as of August 2009 is 45.7 million cubic yards. The estimated 136,776 tons of construction waste is equivalent to approximately 136,776 cubic yards at an average density of 1 ton per cubic yard.<sup>1033</sup> This represents approximately 0.3 percent of the available remaining capacity in the Altamont Landfill.

As noted, at current disposal rates, the Altamont Landfill would be expected to reach capacity in January 2032; however, it may close three years earlier, in January 2029.<sup>1034</sup> Demolition activities, which generate construction debris, are expected to conclude in 2021 at HPS Phase II, eight years before the landfill is expected to close. Further, the City requires the diversion of at least 75 percent of construction waste, as also required by mitigation measure MM UT-5a, which will reduce the amount of waste interred at the landfill. In total, the construction waste sent to Altamont Landfill from activities at HPS Phase II would represent only 0.3 percent of the landfill's remaining capacity. Further, the City continues to actively explore various waste-reduction strategies with the goal of moving towards zero waste. If the City achieves this goal, the impact of construction of the Project on solid waste would be further reduced. The impact of the construction waste generated by HPS Phase II development on the capacity of the Altamont Landfill would be less than significant.

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<sup>1032</sup> The 49ers have two five-year lease extension options. If exercised, they could remain in the stadium through May 2018 or May 2023. In order to have a seamless transition from the existing stadium to a new stadium at HPS Phase II, the new stadium should be constructed before their lease expires, by either 2017 or 2022.

<sup>1033</sup> Densities of construction waste vary from between 400 pounds/cubic yard for wood material to 2400 pounds/cubic yard for loose asphalt and concrete available online at:

<<http://www.ciwmb.ca.gov/LEAtraining/Resources/CDI/Tools/Calculations.htm>>, Accessed: August 24, 2009.

<sup>1034</sup> CIWMB, 2009.

## Combined Impact of Candlestick Point and Hunters Point Shipyard Phase II

**Impact UT-5**      **Construction activities associated with the Project, including demolition of existing facilities, would not generate construction-related solid waste that would exceed the capacity of landfills serving the City and County of San Francisco. (Less than Significant with Mitigation) [Criterion Q.f]**

It is anticipated that the Project would be constructed in phases beginning in 2010, with full build-out by 2029, which represents an approximately 19-year construction period; however, as indicated by Figure II-16, all demolition activities would be concluded by 2024 in Candlestick Point and by 2021 in HPS Phase II.

Demolition of existing facilities within the Project site would generate approximately 971,785 tons of construction debris. Some construction and demolition debris would be reused on site, while other materials would be transported off site for separation. Materials that cannot be reused or recycled would be transported to the landfills in the area. With implementation of mitigation measure MM UT-5a, the Project Applicant would be required to submit a Waste-Diversion Plan demonstrating strategies to divert at least 75 percent of total construction wastes before receiving building permits. This would reduce construction debris transported to the landfill to 25 percent, or 242,946 tons. At an average density of 1 ton per cubic yard, this equals 242,946 cubic yards, or 0.5 percent of the available capacity at Altamont Landfill as of 2009.

At current disposal rates, the Altamont Landfill would be expected to reach capacity in January 2032; however, it may close three years earlier, in January 2029.<sup>1035</sup> Demolition activities, which generate construction debris, are expected to conclude in 2024 at Candlestick Point and in 2021 at HPS Phase II, a minimum of five years before the landfill is expected to close. Further, the City requires the diversion of at least 65 percent of construction waste, as also required by mitigation measure MM UT-5a, which would reduce the amount of waste interred at the landfill. Further, the City continues to actively explore various waste-reduction strategies with the goal of moving towards zero waste. If the City achieves this goal, the impact of construction of the Project on solid waste would be further reduced. The impact of the construction waste generated by the Project on the capacity of the Altamont Landfill would be less than significant.

### **Impact UT-6: Hazardous Waste**

#### **Impact of Candlestick Point**

**Impact UT-6a**      **Construction at Candlestick Point would not require the disposal of hazardous wastes such as lead-based paint, asbestos, and contaminated soils that would exceed the capacity of transport, storage, and disposal facilities permitted to treat such waste. (Less than Significant) [Criterion Q.f]**

Construction activities at Candlestick Point, including demolition and excavation, could require disposal of hazardous wastes such as asbestos, lead-based paint, and contaminated soils. These would require

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<sup>1035</sup> CIWMB, 2009.

disposal by a licensed transporter to a TSD authorized to treat such hazardous waste. Disposal of these wastes would occur intermittently as construction occurs over the 19-year construction period, and would not likely represent a substantial amount of hazardous waste in a given year. Currently, TSDs in California and adjoining states have sufficient capacity to accommodate all hazardous wastes (refer to Setting).

Depending on a number of factors, some soil would be transported off site for disposal and some soil may be transported to other areas of the site. It is estimated that approximately 450,000 cubic yards of soil from Candlestick Point would require transportation off site (refer to Table II-12 [Summary of Project Site Grading Requirements] in Chapter II [Project Description]). At Candlestick Point, results of soil and groundwater sampling taken at depths of up to 15 feet detected organic compounds and metals at various depths and locations, indicating that chemicals were associated with fill materials. Therefore, some of the 450,000 cubic yards could be contaminated and require disposal under hazardous waste regulations.

Because the TSDs in California and adjoining states have sufficient capacity to treat hazardous wastes, construction of Candlestick Point would not generate hazardous wastes (construction debris or contaminated soil) that would exceed the capacity of TSDs authorized to treat such waste. This would be a less-than-significant impact, and no mitigation is required.

## **Impact of Hunters Point Shipyard Phase II**

**Impact UT-6b      Construction at HPS Phase II would not require the disposal of hazardous wastes such as lead-based paint, asbestos, and contaminated soils that would exceed the capacity of transport, storage, and disposal facilities permitted to treat such waste. (Less than Significant) [Criterion Q.f]**

Construction activities at HPS Phase II, including demolition and excavation, could require disposal of hazardous wastes such as asbestos, lead-based paint, and contaminated soils. These would require disposal by a licensed transporter to a TSD authorized to treat such hazardous waste. Disposal of these wastes would occur intermittently as construction of HPS Phase II occurs over a seven-year construction period, and would not likely represent a substantial amount of hazardous waste in a given year. Currently, TSDs in California and adjoining states have sufficient capacity to accommodate all hazardous wastes (refer to Setting).

Depending on a number of factors, some soil would be transported off site for disposal and some soil may be transported to other areas of the site. At HPS Phase II, investigations have shown that chemicals and radioactive materials are present in soil and groundwater in various locations throughout the HPS Phase II site at levels that require remediation. It is anticipated that the Navy would transfer the property in phases, either as it completes remediation of a phase or as it agrees and get approval to transfer the property before full remediation is complete. If transferred under the latter scenario, it is anticipated that most remediation would be completed at the time of transfer and remaining work would involve groundwater treatment, limited soil excavation, placement of soil and building covers on the site, and monitoring. Contaminated soil or other materials generated as a result of these remediation efforts may require transportation off site to designated TSDs. Refer to Section III.K for an accurate description of work that would be done under an early transfer.



Because the TSDs in California and adjoining states have sufficient capacity to treat hazardous wastes, construction of HPS Phase II would not generate hazardous wastes (construction debris or contaminated soil) that would exceed the capacity of TSDs authorized to treat such waste. This would be a less-than-significant impact, and no mitigation is required.

### **Combined Impact of Candlestick Point and Hunters Point Shipyard Phase II**

**Impact UT-6**      **Construction activities associated with the Project would not require the disposal of hazardous wastes such as lead-based paint, asbestos, and contaminated soils that would exceed the capacity of transport, storage, and disposal facilities permitted to treat such waste. (Less than Significant) [Criterion Q.f]**

Construction activities, including demolition and excavation, could require disposal of hazardous wastes such as asbestos, lead-based paint, and contaminated soils. These would require disposal by a licensed transporter to a TSD authorized to treat such hazardous waste. Disposal of these wastes would occur intermittently during the construction period, and would not likely represent a substantial amount of hazardous waste in a given year. Currently, TSDs in California and adjoining states have sufficient capacity to accommodate all hazardous wastes (refer to Setting). Depending on a number of factors, some soil would be transported off site for disposal and some soil may be transported to other areas of the site. Contaminated soils may require transportation off site and treatment at authorized TSDs.

Because the TSDs in California and adjoining states have sufficient capacity to treat hazardous wastes, construction of the Project would not generate hazardous wastes (construction debris or contaminated soil) that would exceed the capacity of TSDs authorized to treat such waste. This would be a less-than-significant impact, and no mitigation is required.

## **■ Operational Impacts**

### ***Impact UT-7: Operation Solid Waste and Permitted Landfill Capacity***

Landfill capacity is a dynamic metric dependent on the amount of solid waste that requires disposal (and the effectiveness of source reduction and recycling methods), the permitted capacity of the landfills, and the number of landfills that can accommodate solid waste.

Table III.Q-8 (Project Solid Waste Generation) shows the projected operational solid waste generation for the Project. The Project would generate a total of approximately 21,827 tons of solid waste annually at full build-out (13,082 tons at Candlestick Point and 8,745 tons at HPS Phase II).

Table III.Q-8 Project Solid Waste Generation										
Use	Generation Factor (per day)	Candlestick Point			HPS Phase II			Total		
		Area or Units	Tons per Day or Event	Tons per Year	Area or Units	Tons per Day or Event	Tons per Year	Area or Units	Tons per Day or Event	Tons per Year or per Total Number of Events <sup>a</sup>
Residential	5.653 lbs/unit	7,850 units	22.2	8,103	2,650 units	7.5	2,737.5	10,500 sf	29.7	10,840.5
Retail	0.02600411 lbs/sf	760,000 sf	9.9	3,613.5	125,000 sf	1.6	584.0	885,000 sf	11.5	4,197.5
Office	0.006 lbs/sf	150,000 sf	0.5	182.5	0	0	0	150,000 sf	0.5	182.5
Hotel	0.0108 lbs/sf	150,000 sf	0.8	292.0	0	0	0	150,000 sf	0.8	292.0
R&D	0.006 lbs/sf	0	0	0	2,500,000 sf	7.5	2,737.5	2,500,000 sf	7.5	2,737.5
Performance Venue	2.23 lbs/seat	10,000 seats	5.6 <sup>b</sup>	836.3 <sup>c</sup>	0	0	0	10,000 seats	5.6	836.3 <sup>c</sup>
Stadium	2.23 lbs/seat	0	0	0	65,550 seats <sup>d</sup>	73.1	2,339.2 <sup>e</sup>	65,550 seats	2,339.2	2,339.2 <sup>e</sup>
Artist Studios/Art Center	0.006 lbs/sf	0	0	0	255,000 sf	0.8	292	255,000 sf	0.8	292.0
Community Facilities	0.006 lbs/sf	50,000 sf	0.15	54.8	50,000 sf	0.15	54.8	100,000 sf	0.3	109.6
Total				13,082	8,745			21,827		

SOURCE: PBS&J 2009; Generation Factors from Arup, *Carbon Footprint Report*, March 24, 2009.

a. Calculated by adding the horizontal columns, rather than calculating total number of units by the generation rate.

b. The Performance venue is projected to be 50 percent attendance.

c. Assumes 150 events per year at 50 percent attendance.

d. Assumes a sold-out event with a 5 percent "no-show" rate.

e. Assumes 12 sold-out games and 20 other sold-out stadium events per year.

## Impact of Candlestick Point

**Impact UT-7a      Implementation of the Project at Candlestick Point would not generate solid waste that would exceed the capacity of landfills serving the City and County of San Francisco. (Less than Significant with Mitigation) [Criterion Q.f]**

Operation of the Candlestick Point development would generate approximately 13,082 tons of solid waste annually when all uses are fully operational and assuming no waste-reduction measures. This would represent approximately 2 percent of the total waste generated in San Francisco as of 2008 (approximately 594,732 tons). Approximately 72 percent of the City's total waste stream, by volume, was diverted in 2008.<sup>1036</sup> Of the wastes that were not diverted, the City estimates that up to 65 percent of the total volume consists of readily recyclable or compostable materials, such as paper and food scraps.<sup>1037</sup> The remainder of the wastes consists of materials such as disposed household items and furniture, hazardous wastes, and construction wastes.

The City has implemented a number of aggressive strategies to divert additional solid waste and achieve citywide diversion goals. The City plans to achieve a 75 percent landfill diversion by 2010 and full (100 percent) waste diversion by 2020. The City encourages residents and businesses to pre-sort recyclables, compostable wastes (food scraps and yard waste), and garbage into separate curbside collection containers, sponsors regular public outreach events to educate San 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. On June 9, 2009, the City Board of Supervisors approved an ordinance that requires recycling and composting by residential and commercial uses. All residents and businesses of Candlestick Point would be required to comply with the City's mandatory recycling and composting ordinance. The Project Applicant also proposes to provide recycling facilities for residents and tenants of commercial and retail space, including recycling containers in common areas.

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

Consistent with the City's goal of achieving zero waste by the year 2020, the Project Applicant shall prepare a Site Waste Management Plan (SWMP) as required by mitigation measure MM UT-7a that will

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<sup>1036</sup> This figure is a preliminary estimate and represents the most recent data available. California Integrated Waste Management Board, 2008. *Jurisdiction Profile for City of San Francisco*. Available online at: <<http://www.ciwmb.ca.gov/Profiles/Juris/JurProfile1.asp?RG=C&JURID=438&JUR=San+Francisco>> (accessed November 5, 2008).

<sup>1037</sup> San Francisco, *Waste Characterization Study: Final Report*. 2008.

specify the methods by which the Project would divert operational solid waste to assist the City in achieving its diversion goals. The following mitigation measures shall be implemented:

**MM UT-7a**      *Site Waste Management Plan. The Project Applicant shall prepare a Site Waste Management Plan (SWMP) in cooperation with the Agency to describe the methods by which the Project shall minimize waste generation not otherwise covered by existing City regulatory policies, with the goal of achieving a diversion rate of at least 72 percent, consistent with the City's existing diversion rate in 2008. The SWMP shall be submitted to the Department of Environment (DOE) for approval prior to the issuance of the first development permit for the Project.*

As noted, above, the Altamont Landfill is scheduled to close in January 2029, concurrent with full build-out of Candlestick Point, and the City's existing contract with Altamont Landfill expires in 2014, before build-out of Candlestick Point. Three landfills have been identified as candidates to accommodate the City's solid waste needs after the contract with Altamont Landfill expires. The process of selection and negotiation of a new contract is anticipated to be completed by early 2010. As a primary course of business, the City would continue to ensure that solid waste can be disposed of through new contracts or reinstated contracts with solid waste disposal facilities and through aggressive waste-minimization efforts. Further, implementation of mitigation measure MM UT-7a would provide specific strategies to ensure that the Project reduces solid waste disposed of in landfills in a manner consistent with the City's overarching goal of achieving zero waste by 2020. The impact of operational solid waste generated by the Candlestick Point development on the capacity of the Altamont Landfill (and/or the landfill with which the City contracts at the close of the current selection process) would be less than significant.

## **Impact of Hunters Point Shipyard Phase II**

**Impact UT-7b**      **Implementation of the Project at HPS Phase II would not generate solid waste that would exceed the capacity of landfills serving the City and County of San Francisco. (Less than Significant with Mitigation) [Criterion Q.f]**

Operation of the HPS Phase II development would generate approximately 8,745 tons of solid waste annually when all uses are fully operational and assuming no waste reduction measures. This would represent approximately 1.4 percent of the total waste generated in San Francisco as of 2008 (approximately 594,732 tons). As discussed in more detail in Impact UT-7a, the City has implemented a number of aggressive strategies to divert additional solid waste and achieve citywide diversion goals. The City plans to achieve a 75 percent landfill diversion by 2010 and full (100 percent) waste diversion by 2020. In 2008, the City achieved 72 percent landfill diversion.

All residents and businesses of the HPS Phase II would be required to comply with the City's mandatory recycling and composting ordinance. In addition, consistent with the City's goal of achieving zero waste by the year 2020, the Project Applicant will prepare a Site Waste Management Plan as required by mitigation measure MM UT-7a that would specify the methods by which the Project would divert operational solid waste to assist the City in achieving its diversion goals.

As noted, above, the Altamont Landfill is scheduled to close in January 2029, after full build-out of HPS Phase II, and the City's existing contract with Altamont Landfill expires in 2014, before build-out of the HPS Phase II. Three landfills have been identified as candidates to accommodate the City's solid waste

needs after the contract with Altamont Landfill expires. The process of selection and negotiation of a new contract is anticipated to be completed by early 2010. As a primary course of business, the City would continue to ensure that solid waste can be disposed of through new contracts or reinstated contracts with solid waste disposal facilities and through aggressive waste minimization efforts. Further, implementation of mitigation measure MM UT-7a would provide specific strategies to ensure that the Project reduces solid waste disposed of in landfills in a manner consistent with the City's overarching goal of achieving zero waste by 2020. The impact of operational solid waste generated by the HPS Phase II on the capacity of the Altamont Landfill (and/or the landfill with which the City contracts at the close of the current selection process) would be less than significant.

### **Combined Impact of Candlestick Point and Hunters Point Shipyard Phase II**

**Impact UT-7      Implementation of the Project would not generate solid waste that would exceed the capacity of landfills serving the City and County of San Francisco. (Less than Significant with Mitigation) [Criterion Q.f]**

At full build-out, the Project would generate approximately 21,827.1 tons annually when all uses are fully operational and assuming no waste reduction measures. This would represent approximately 3.7 percent of the total waste generated in San Francisco as of 2008 (approximately 594,732 tons). As discussed in more detail in Impact UT-7a, the City has implemented a number of aggressive strategies to divert additional solid waste and achieve citywide diversion goals. The City plans to achieve a 75 percent landfill diversion by 2010 and full (100 percent) waste diversion by 2020. In 2008, the City achieved 72 percent landfill diversion.

All residents and businesses of the Project would be required to comply with the City's mandatory recycling and composting ordinance. In addition, consistent with the City's goal of achieving zero waste by the year 2020, the Project Applicant will prepare a Site Waste Management Plan as required by mitigation measure MM UT-7a.1 that would specify the methods by which the Project would divert operational solid waste to assist the City in achieving its diversion goals.

The Altamont Landfill is scheduled to close in January 2029, concurrent with full build-out of the Project, and the City's existing contract with Altamont Landfill expires in 2014, before build-out of the Project. Three landfills have been identified as candidates to accommodate the City's solid waste needs after the contract with Altamont Landfill expires. The process of selection and negotiation of a new contract is anticipated to be completed by early 2010. As a primary course of business, the City would continue to ensure that solid waste can be disposed of through new contracts or reinstated contracts with solid waste disposal facilities and through aggressive waste minimization efforts. Further, implementation of mitigation measure MM UT-7a would provide specific strategies to ensure that the Project reduces solid waste disposed of in landfills in a manner consistent with the City's overarching goal of achieving zero waste by 2020. The impact of operational solid waste generated by the HPS Phase II on the capacity of the Altamont Landfill (and/or the landfill with which the City contracts at the close of the current selection process) would be less than significant.

### **Impact UT-8: Hazardous Waste Generation**

The Project Description identifies proposed land uses, but the specific businesses or activities that could operate in the Project are not known at this time. The analysis assumes nearly all Project uses would involve the routine use of hazardous materials at varying levels that would require disposal. Quantification of precise amounts of additional hazardous materials use associated with new proposed uses is not practical at this stage of Project development. It is assumed that a variety of hazardous materials could be used, ranging from R&D, in which a wide variety of hazardous materials would be used, facilities such as the proposed stadium, where fuels and maintenance products would comprise the majority of hazardous materials, to smaller-scale users, such as artists' studios. In addition, remediation activities undertaken as part of the Project (addressed in Section III.K), could generate hazardous substances for disposal. For purposes of the analysis, compliance with existing federal, state, and local laws and regulations pertaining to disposal of hazardous materials would be assumed.

#### **Impact of Candlestick Point**

**Impact UT-8a      Implementation of the Project at Candlestick Point would not generate hazardous waste that would exceed the permitted capacity of transport, storage, and disposal facilities authorized to treat such waste. (Less than Significant) [Criterion Q.f]**

As noted, the specific businesses or activities that could operate at Candlestick Point are not known at this time. Nearly all Project uses would involve the routine use of hazardous materials at varying levels that would require disposal. Quantification of precise amounts of additional hazardous materials use associated with new proposed uses is not practical at this stage of Project development. Hazardous wastes are considered to include waste that is toxic, reactive, ignitable, or corrosive.<sup>1038</sup> The uses at Candlestick Point would consist primarily of office, hotel, residential, and retail, which would not generate significant amounts of hazardous waste. Currently, TSDs in California and adjoining states have sufficient capacity to accommodate all anticipated hazardous wastes (refer to Setting). Since no heavy industrial or hospital uses (other than potentially medical or veterinary offices, which would generate hazardous wastes in small quantities) are proposed under the Project, the amount of hazardous wastes that would be generated would be minimal, consisting primarily of household hazardous waste, such as batteries, cleaning products, universal waste (appliances, cellular phones), and small amounts of inorganic wastes such as waste oil from commercial uses. Emptied household hazardous materials and pesticide containers with a capacity of five gallons or less and aerosol containers that are emptied to the maximum extent practical under normal use are exempt from regulation by the EPA.<sup>1039</sup> New residents and businesses would be expected to comply with all hazardous waste regulations, including the disposal of household hazardous waste. Because the minimal amount of hazardous waste that would be generated by the Project could be accommodated by existing facilities, this impact would be less than significant, and no mitigation is required.

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<sup>1038</sup> US EPA, 2009.

<sup>1039</sup> US EPA, 2009.

## Impact of Hunters Point Shipyard Phase II

**Impact UT-8b**      **Implementation of the Project at HPS Phase II would not generate hazardous waste that would exceed the permitted capacity of transport, storage, and disposal facilities authorized to treat such waste. (Less than Significant) [Criterion Q.f]**

As noted, the specific businesses or activities that could operate at HPS Phase II are not known at this time. Nearly all Project uses would involve the routine use of hazardous materials at varying levels that would require disposal. Quantification of precise amounts of additional hazardous materials use associated with new proposed uses is not practical at this stage of Project development. Therefore, it is assumed that a variety of hazardous materials could be used, ranging from R&D in which a wide variety of hazardous materials would be used, to facilities such as the proposed stadium, where fuels and maintenance products would comprise the majority of hazardous materials, to smaller-scale users, such as artists' studios. The uses proposed at HPS Phase II would not include Large-Quantity Generators (more than 600 pounds of hazardous waste generation per month). It is not likely that the Project would include Small Quantity Generators (SQG) as defined by the US EPA, which generate more than 60 pounds, but less than 600 pounds, of hazardous waste per month. The amounts of hazardous waste that would be generated by uses at HPS Phase II would not be substantial.

Currently, TSDs in California and adjoining states have sufficient capacity to accommodate all anticipated hazardous wastes (refer to Setting). Since no industrial uses are proposed under the Project, the amount of hazardous wastes that would be generated would be minimal, consisting primarily of household hazardous waste, such as batteries, cleaning products, universal waste (appliances, cellular phones), and small amounts of inorganic wastes such as waste oil from commercial uses. New residents and businesses would be expected to comply with all hazardous waste regulations, including the disposal of household hazardous waste. Because the minimal amount of hazardous waste that would be generated by the Project could be accommodated by existing facilities, this impact would be less than significant, and no mitigation is required.

## Combined Impact of Candlestick Point and Hunters Point Shipyard Phase II

**Impact UT-8**      **Implementation of the Project would not generate hazardous waste that would exceed the permitted capacity of transport, storage, and disposal facilities authorized to treat such waste. (Less than Significant) [Criterion Q.f]**

As noted, the specific businesses or activities that could operate under the Project are not known at this time. Nearly all Project uses would involve the routine use of hazardous materials at varying levels that would require disposal. Quantification of precise amounts of additional hazardous materials use associated with new proposed uses is not practical at this stage of Project development. Therefore, it is assumed that a variety of hazardous materials could be used in small quantities, ranging from R&D in which a wide variety of hazardous materials would be used, to facilities such as the proposed stadium, where fuels and maintenance products would comprise the majority of hazardous materials, to smaller-scale users, such as artists' studios, and the marina, where small quantities of fuel could be utilized. The uses proposed would not include Large-Quantity Generators (more than 600 pounds of hazardous waste

generation per month). It is not likely that the Project would include Small Quantity Generators (SQG) as defined by the US EPA, which generate more than 60 pounds, but less than 600 pounds, of hazardous waste per month. The amounts of hazardous waste that would be generated by uses at the Project would not be substantial.

Since there is no established ceiling on capacities of TSDs in California and adjoining states, it is assumed there would be sufficient capacity to accommodate all anticipated hazardous wastes (refer to Setting). Since no industrial uses are proposed under the Project, the amount of hazardous wastes that would be generated would be minimal, consisting primarily of household hazardous waste and small amounts of inorganic wastes such as waste oil from commercial uses. New residents and businesses would be expected to comply with all hazardous waste regulations, including the disposal of household hazardous waste. Because the minimal amount of hazardous waste that would be generated by the Project could be accommodated by existing facilities, this impact would be less than significant, and no mitigation is required.

#### ***Impact UT-9: Compliance with Solid Waste Regulations***

**Impact UT-9**                      **Implementation of the Project would comply with federal, state, and local statutes and regulations related to solid waste. (Less than Significant with Mitigation) [Criterion Q.g]**

The City currently has a solid waste diversion rate of approximately 72 percent, which exceeds the 50 percent diversion threshold specified in the California Integrated Waste Management Act. By 2010, the City must achieve a 75 percent diversion rate to meet internal citywide goals and to comply with the conditions of an agreement between the City and the Altamont Landfill. The City anticipates that it would achieve a total waste diversion rate of at least 75 percent by 2010 through continued implementation of the City's Zero Waste strategies and recent improvements to the efficiency of sorting and transfer facilities. Development within the Project site would meet or exceed all of the City's solid waste diversion requirements for new development. Mitigation measure MM UT-7a.1 requires the Project Applicant to provide a Site Waste Management Plan demonstrating the manner in which the Project would comply with these requirements. The Project Applicant proposes to provide recycling facilities for residents and tenants of commercial and retail space. Implementation of mitigation measures MM UT-7a.1, MM UT-7a.2, and MM UT-5a would ensure compliance with applicable regulations pertaining to solid waste. Development of the Project would not conflict with regulatory policies pertaining to solid waste and this impact would be less than significant.

### **■ Cumulative Impacts**

The geographic context for an analysis of cumulative impacts associated with solid waste is the City of San Francisco. The past and present development in the City is described in the Setting section of this chapter, representing the baseline conditions for evaluation of cumulative impacts. Reasonably foreseeable future development forecasts are based on projections of future growth and take into account projects going through the entitlement process.

Development of the Project would comply with federal, state, and local statutes and regulations. All cumulative development in the City would be expected to meet or exceed all solid waste diversion



requirements for new development. Therefore, there would be no cumulative problem with respect to this threshold. The Project would comply with all applicable regulations pertaining to solid waste, both from construction and operation, and the cumulative impact would be less than significant.

There is a growing landfill capacity problem for municipal solid waste and construction waste in the State of California, and various approaches are being explored and implemented to help reduce the impact of the increasing amounts of solid waste generated by a growing population. Even with implementation of increased recycling programs, the future capacity of landfills to accommodate the State's solid waste is uncertain. There could be a shortage of landfill space in the future, as some landfills are nearing capacity or would close during the planning period for the General Plan. This is a potentially significant cumulative problem.

In 1988, the City of San Francisco entered into an agreement with what is now Waste Management of Alameda for the disposal of 15 million tons of solid waste. Through August 1, 2009, the City has used 12,579,318 tons of this capacity. The City projects that the remaining capacity would be reached no sooner than August 2014 (assuming an average of 467,000 tons a year disposal).<sup>1040</sup>

The City has issued a Request for Qualifications to solicit bids for a new contract to accommodate the City's disposal capacity beyond the expiry of the current agreement. The City has selected three landfills that have the capacity to meet the City's future needs and is in the final stages of the selection process that will result in an agreement for ratification by the Board of Supervisors no later than early 2010. The agreement will be for an additional 5 million tons of capacity, which could represent 20 or more years of capacity for San Francisco's waste. Future agreements will be negotiated as needed for San Francisco's waste disposal needs.

Cumulative development in the City would generate varying amounts of solid waste that would decrease the remaining capacity of servicing landfills. The City has implemented a number of aggressive strategies to divert additional solid waste and achieve citywide diversion goals. The City plans to achieve a 75 percent landfill diversion by 2010 and full (100 percent) waste diversion by 2020, and its contribution of solid waste to landfills is anticipated to continue to diminish over time. Increasing solid waste diversions would extend the life of the landfills utilized by the City, lengthening the time horizon before the remaining disposal capacity is filled. The Green Building Ordinance, Chapter 7 of the Environment Code, establishes LEED<sup>®</sup> Silver level as the standard for all City building projects, which can include the goal of diverting 75 percent of construction and demolition debris from landfills for each project. Therefore, contributions from the Project, combined with cumulative projects, which would also be subject to the Green Building Ordinance, would not substantially contribute to landfills. The amount of waste generated by the Project would be a relatively small percentage (3.7 percent) of the solid waste generated by the City, without any recycling efforts beyond a 75 percent diversion rate. The Project Applicant would implement strategies for reduction of construction waste, as identified, above, and would achieve a construction waste diversion rate of at least 75 percent. Implementation of mitigation measure MM UT-7a would provide for preparation of a waste diversion plan that would address waste-diversion strategies for areas not otherwise covered by existing City policies. With compliance with the

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<sup>1040</sup> E-mail communication with David Assman, City of San Francisco, Department of the Environment, October 19, 2009.

Green Building Ordinance and implementation of on-site recycling, the Project would not make a cumulatively considerable contribution to any potential cumulative impact with regard to landfill capacity. The Project's cumulative impact would be less than significant.

Development of cumulative projects in the City of San Francisco could result in additional hazardous waste generation, depending on the uses proposed. As there are no capacity issues with regard to transport or treatment of hazardous waste, as noted, above, the cumulative projects would not contribute hazardous waste that would exceed the capacity of the TSDs authorized to handle this waste. Even if there were a significant cumulative problem with regard to hazardous waste, since no heavy industrial or hospital uses are proposed under the Project, the amount of hazardous wastes that would be generated would be minimal, consisting primarily of household hazardous waste and small amounts of inorganic wastes such as waste oil from commercial uses, and the Project would not make a considerable contribution to such cumulative impact. New residents and businesses would be expected to comply with all hazardous waste regulations, including the disposal of household hazardous waste. The Project's cumulative impact with regard to hazardous waste would, therefore, be less than significant.

## **Electricity, Natural Gas, and Telecommunications**

### **III.Q.11 Setting**

Utilities within the Project area are located above and below ground. Above-ground level utilities include overhead electrical distribution and transmission lines. Underground utilities include electrical, gas, TV/cable, fiber optics communications, and telephone. Pacific Gas & Electric (PG&E) currently provides natural gas and electricity services to Candlestick Point and Hunters Point. Project consumption of electricity and natural gas is addressed in Section III.R. The following section discusses utility infrastructure and how the Project would affect distribution of those resources.

The PG&E system is composed of 123,054 circuit miles of electric distribution lines and 18,610 circuit miles of interconnected transmission lines, 40,123 miles of natural gas distribution pipelines and 6,136 miles of transportation pipelines.<sup>1041</sup> PG&E produces or buys its power from a mix of conventional and renewable energy sources. PG&E acquires electricity from over 400 independent producers as well as some out-of-state producers. The electricity is carried over the bulk grid, a network of high-voltage transmission lines that connect power plants to substations. Substations then switch the electricity from the transmission system to the distribution system, transforming the voltage from high to low in the process. The distribution system includes main, or primary, lines, as well as secondary lower-voltage lines, which deliver electricity either overhead or underground, distribution transformers, which lower voltage to usage levels, and switching equipment, which allow the lines to be connected together in various configurations.

PG&E also operates a hydroelectric system built along 16 river basins stretching nearly 500 miles from Redding in the north to Bakersfield in the south. Water used to power the hydroelectric system comes from more than 100 reservoirs located mostly in the higher elevations of California's Sierra Nevada mountain range. The system includes 68 powerhouses that have a total generating capacity of 3,896

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<sup>1041</sup> PG&E, 2009.

megawatts. PG&E also owns the Diablo Canyon Power Plant, located in San Luis Obispo County, California.

The Project area currently has a 12kV electrical connection to the PG&E grid. Such a connection is capable of supporting an operating load of approximately 9MW.

Natural gas is currently provided to the Project site by PG&E. PG&E's natural gas piping system delivers natural gas from three major sources: California, Southwestern US, and Canada. Natural gas from underground wells is cleaned and treated, removing sand, dust, and water, and compressed for storage in underground storage fields. A compressor station increases gas pressure to move it into storage or through transmission lines. High-pressure transmission lines transport the natural gas to the distribution system via a network of mostly underground lines. Regulators reduce the pressure of the gas entering the distribution system, which consists of both high- and low-pressure mains that distribute gas from the regulator station. The Project's on-site infrastructure would connect to the existing infrastructure at Crisp and Griffith, Innes and Donahue, and at Harney Way.

Telephone, television, and internet services could be provided by any one of a number of service providers in the City of San Francisco.

## **III.Q.12 Regulatory Framework**

### **■ Federal**

There are no federal policies pertaining to electricity, natural gas, or telecommunications.

### **■ State**

The California Public Utilities Commission regulates investor-owned electric and natural gas utilities operating in California, including PG&E. There are no State policies pertaining to electricity, natural gas, or telecommunications.

### **■ Local**

Section 1636 of the City of San Francisco Subdivision Code requires that the subdivider provide electric, gas and communication services connected to the appropriate public utility's distribution system. Improvement plans, including an infrastructure plan, must be submitted to the City for approval following approval of the Tentative Map and prior to filing the Final Map. The Project Applicant would be required to obtain approval of the improvement plans pursuant to Article 31, Section 3100 of the San Francisco Health Code, which governs development at Hunters Point Shipyard.

## III.Q.13 Impacts

### ■ Significance Criteria

The CCSF and Agency have not formally adopted significance standards for impacts related to dry utilities, but generally consider that implementation of the Project would have significant impacts on these resources if it were to:

- Q.h Require or result in the construction of new or expansion of existing utility infrastructure, the construction of which could cause significant environmental effects
- Q.i Result in a determination by the utility service provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments

### ■ Analytic Method

The existing dry utility (electricity, natural gas, and telecommunications/cable) infrastructure is described, and any required extensions of this infrastructure to accommodate the Project are identified. Project requirements are then compared against the capacity of the service providers to accommodate Project needs.

### ■ Construction Impacts

Significance criterion Q.h, above, indicates that the Project would have a significant adverse effect if it would require or result in the construction of new facilities or expansion of existing utility infrastructure, the construction of which could cause significant environmental effects. The proposed improvements within the HPS Phase II and Candlestick Point boundaries include the construction of a joint trench for electrical, natural gas, cable TV, and telecommunications. In addition, the joint trench will include conduits and conductors for street lighting and traffic signals. The power supplier may service the project via new extensions of the 12KV distribution and or 115KV transmission lines into the HPS Phase 2 project site. This could include a new substation within the project site. Impacts of construction activities associated with the Project, including demolition and installation of new utility infrastructure, are discussed in Section III.D, Section III.H, Section III.I, Section III.J, Section III.K, Section III.L, Section III.M, Section III.O, and Section III.S of this EIR. No new construction impacts beyond those identified in those sections would occur with construction of utility infrastructure associated with the Project.

### ■ Operational Impacts

#### ***Impact UT-10: Utility Service Capacity***

<b>Impact UT-10</b>	<b>Implementation of the Project would not require extension of dry utility infrastructure that would exceed the capacity of the services providing such utilities. (Less than Significant) [Criterion Q.i]</b>
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The Project site is currently served by the PG&E electrical distribution system. The Project has not yet selected a service provider for electricity, which would be either PG&E or SFPUC. The Project would

provide a joint trench network for the Candlestick Point and HPS Phase II developments that would include electrical, communications, and gas utilities. In addition, the joint trench would include conduits and conductors for street lighting and traffic signals. Major and minor joint trenches would be routed through the street network to provide power, communications, and gas facilities to the development areas.

The projected electricity load for the fully developed Project is estimated to be approximately 44 MW by the year 2021. This value includes the load assumption for the stadium and includes a number of energy-efficiency and low-energy design measures.<sup>1042</sup> The Project would require an upgrade of the existing connection to the grid. The electricity provider may service the project via new extensions of the 12KV distribution and or 115KV transmission lines into the Project site and improvements could include a new substation within HPS Phase II. Although the Project would result in an increase in electricity demand in the City, it would comply with the energy-conservation standards specified in Title 24 of the CCR and, in fact, would achieve a 15 percent improvement over Title 24 requirements. Further, implementation and extension of utility infrastructure would be fully funded and constructed by the Project Applicant. As part of its Infrastructure Plan, the Project Applicant would identify and implement all needed upgrades to the distribution system, including installation of new transformers, additional distribution lines, switches, and/or potentially an electrical substation, as noted. The Infrastructure Plan would also be subject to the approval of the City to ensure that adequate capacity is provided to accommodate the Project. As required by law, all utility connections would be constructed in accordance with the Uniform Building Code, City Ordinances, and Department of Public Works standards to ensure an adequately sized and properly constructed electrical transmission and conveyance system.

Similarly, the on-site natural gas distribution system would connect to the existing PG&E system at Crisp and Griffith, Innes and Donahue, and at Harney Way. All natural gas connections would be constructed in accordance with the Uniform Building Code, City Ordinances, and Department of Public Works standards to ensure an adequately sized and properly constructed natural gas transmission and conveyance system. Further, implementation and extension of utility infrastructure would be fully funded and constructed by the Project Applicant. The Infrastructure Plan would contain a comprehensive description of all natural gas distribution upgrades required by the Project, as well as the specific locations of all connections. The Plan would be subject to the approval of the City prior to the issuance of development permits.

Telecommunications providers are “on-demand” services, generally expanding their systems in response to demand, and would be anticipated to provide extensions of existing infrastructure to the Project site as required. Telecommunications and cable services would be provided for the Project by any one of a number of providers in the San Francisco area. The service providers would provide any needed upgrades to their distribution systems, including new switching and routing equipment, to accommodate the demand of the Project. Such extensions would require minimal trenching, if any, and would not be anticipated to result in significant environmental impacts beyond those previously analyzed in this EIR.

The subdivision process would include submittal of detailed infrastructure plans to the Department of Public Works identifying how they would meet the infrastructure needs of the Project. Implementation

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<sup>1042</sup> Arup, March 2009.

of these plans would be a condition of subdivision approval. The subdivision process would ensure that adequate infrastructure is provided to accommodate the demands of the Project such that the capacity of the service providers to provide such utilities would not be exceeded. Therefore, the impact would be less than significant. No mitigation is required.

## ■ Cumulative Impacts

The geographic context for an analysis of cumulative impacts associated with dry utilities would be the service areas of the respective providers. For electricity, it would be either the service area of PG&E or the SFPUC. For natural gas, the context would be the service area of PG&E. Telecommunications and cable have varying service areas depending on the provider. Telecommunications providers are “on-demand” services, providing additional infrastructure as demand grows. These service providers would extend their infrastructure to accommodate growth within their service areas. The past and present development in these service areas is generally described in the Setting section of this chapter, representing the baseline conditions for evaluation of cumulative impacts. The service area of PG&E, however, extends beyond the City and County of San Francisco; PG&E provides natural gas and electric service to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. Its service area stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. Reasonably foreseeable future development forecasts are based on projections of future growth and take into account projects going through the entitlement process.

Development of cumulative projects, in combination with the Project, would increase demand for electricity, natural gas, and telecommunications services. All cumulative projects within the City of San Francisco would be required to comply with the subdivision code and other applicable City codes, which, among other provisions, require that infrastructure plans be submitted for approval to demonstrate that adequate infrastructure exists or would be constructed to accommodate the project. Other jurisdictions in the providers’ service areas have similar requirements, particularly for larger projects, to ensure that project needs can be accommodated by various public services. Since California’s energy crisis in 2001, utility planning is done in a much more coordinated manner to achieve adequacy of supply, to establish and oversee formal operational standards for running the bulk power systems, and to address security concerns for critical electrical infrastructures.<sup>1043</sup> This coordination is administered under mandatory procedures set up by the electric power industry’s electricity reliability organization (the North American Electric Reliability Corporation), with oversight provided by the Federal Energy Regulatory Commission and the US Department of Energy.<sup>1044</sup> This planning effort has resulted in a more dependable electricity supply to the state, and new transmission lines are being built throughout California and elsewhere to ensure a steady and reliable supply of electricity. In addition, all projects in California are subject to Title 24 requirements for energy conservation. New energy-conservation measures recommended by the Attorney General and CAPCOA (refer to Section III.S), further reducing energy consumption. Therefore, development of cumulative projects is not anticipated to result in demand exceeding supply, and there would be no significant cumulative impact. The Project’s infrastructure improvements would ensure that necessary upgrades to the electrical distribution system are provided and that capacity of the

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<sup>1043</sup> California Department of Energy, 2009.

<sup>1044</sup> Energy Information Administration, <http://www.eia.doe.gov/> Accessed 10/27/09.

service provider to provide electricity to the Project and existing customers would not be exceeded. The Project's cumulative impact would be less than significant.

With regard to natural gas, substantial expansion projects have been completed around the country in the last few years. For example, during 2008, at least 84 natural gas pipeline projects were completed, adding close to 4,000 miles of natural gas pipeline and about 43.9 billion cubic feet per day of new capacity to the national natural gas pipeline grid.<sup>1045</sup> New exploration and drilling projects are also underway. These efforts will help accommodate the country's needs for natural gas. PG&E similarly develops new sources of natural gas to serve its customers. All projects in California are subject to Title 24 requirements for energy conservation. Therefore, development of cumulative projects is not anticipated to result in demand exceeding natural gas supply, and there would be no significant cumulative impact. The Project's infrastructure improvements would ensure that necessary upgrades to the natural gas distribution are provided and that capacity of PG&E to provide natural gas to the Project and its existing customers would not be exceeded. The Project's cumulative impact would be less than significant.

Telecommunications services are provided on demand, and service providers expand their distribution systems as needed to accommodate growth. Cumulative projects would increase demand for these services, but would be accommodated by any one of a number of providers in the San Francisco area. Therefore, there would be no significant cumulative impact. The Project's telecommunications needs would be accommodated by these providers, and demand would not exceed supply. Therefore, the Project's cumulative impact would be less than significant.

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<sup>1045</sup> Energy Information Administration, <http://www.eia.doe.gov/> Accessed 10/27/09.

