J. RECREATION

This section analyzes the potential for both project-level and cumulative environmental impacts of the Proposed Project related to recreation. The Setting discussion describes the existing recreational resources on the Project Site and in the vicinity of the Project Site. The Impacts analysis identifies significance criteria for impacts related to recreation and discusses the changes in demand for recreational facilities that would occur with implementation of the Proposed Project. Finally, cumulative effects of the Proposed Project with reasonably foreseeable development in the vicinity are discussed. Data used in this section includes information obtained from the San Francisco Recreation and Park Department (RPD), the San Francisco Department of Public Health, Golden Gate National Recreation Area (GGNRA), and the Recreation and Open Space Element of the *San Francisco General Plan*.

SETTING

RECREATIONAL AND PARK RESOURCES

Citywide and Regional Resources

The RPD maintains more than 230 properties (parks, playgrounds, and open spaces) throughout the City. Among its responsibilities are the management of 15 large, full-complex recreation centers; 9 swimming pools; 6 golf courses; and hundreds of tennis courts, baseball diamonds, athletic fields, and basketball courts. Most of these properties have one or more buildings and/or recreation facilities as well as paving, signage, irrigation, electrical, water and sewer systems. The RPD also manages many of the City's signature facilities, such as the Palace of Fine Arts, Golden Gate Park, Coit Tower, the Marina Yacht Harbor, and Candlestick Park with its football stadium. The Project Site is located near two of the City's unique facilities, the San Francisco Zoo and Lake Merced Park, which includes the Harding Park and Jack Fleming Golf Courses (the Lake Merced Complex). The San Francisco Zoo is managed by the non-profit San Francisco Zoological Society in partnership with the City and County of San Francisco and attracts approximately 925,000 visitors a year.[1] The San Francisco Public Utilities Commission (SFPUC) owns Lake Merced Park and has jurisdiction over that property, while the RPD maintains the recreational uses around it under the terms of a memorandum of understanding between the two departments. Recreation activities at the lake include boating, fishing, golfing, jogging, bicycling, skeet shooting, and picnicking.

[1] San Francisco Zoo. Website, http://www.sfzoo.org/openrosters/ViewOrgPageLink.asp?LinkKey=14092&orgkey=1903, accessed November 20, 2009.

RPD-owned and -operated property in San Francisco that is permanently dedicated to publicly accessible recreational and open space uses totaled approximately 3,370 acres in 2009.[2] Together with the approximately 3,007 acres owned and operated by other City agencies and state and federal open space properties within the City, about 6,377 acres of parkland and open space (a variety of parks, walkways, landscaped areas, recreational facilities, playing fields and unmaintained open areas) serve San Francisco.[3] According to the California Department of Finance, the population of San Francisco as of January 1, 2009, was 845,559,[4] yielding a ratio of approximately 7.5 acres per 1,000 San Francisco residents. The City has not established a Citywide target ratio of parkland to residents,[5] and the Recreation and Open Space Element of the *San Francisco General Plan* recognizes that San Francisco is likely to provide less open space acreage than many communities, given land constraints, high population density and existing urban development. However, under Policy 2.1 of the Open Space Element, the City identified a need to increase the per capita supply of public open space within the City from the General Plan-identified ratio of 5.5 acres per 1,000 San Francisco residents to a level closer to the National Park and Recreation Association (NPRA) suggested ratio of 10 acres per 1,000 residents. As part of this effort, City residents voted in favor of the 2008 Clean and Safe Neighborhood Parks Bond, which is expected to augment the number of City parks (primarily in the eastern part of the City) and fund renovations and repairs to parks, playground, and athletic fields throughout the City.[6]

Within San Francisco, publicly accessible open spaces and recreational facilities are categorized according to their size and particular amenities as serving the City, district, neighborhood, or subneighborhood.[7] District-serving parks are generally larger than 10 acres and have a service area consisting of a three-eighths-mile radius around the park, while neighborhood-serving parks are generally 1 to 10 acres and have a service area of one-quarter mile. Subneighborhood-serving open spaces, often referred to as mini parks, are less than an acre and are too small to accommodate athletic facilities. The service area for subneighborhood parks is one-eighth mile. These parks tend to include seating areas, small landscaped spaces, tot lots targeting pre-school age children, and playgrounds with amenities generally for elementary-school-age children.

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[2] San Francisco Department of Public Health, *Healthy Development Measurement Tool*. Website: http://www.thehdmt.org/indicators/view/8, accessed November 17, 2009 (hereinafter referred to as "Healthy Development Measurement Tool").

[3] Healthy Development Measurement Tool.

[4] *S*tate of California, Department of Finance, *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change – January 1, 2008 and 2009.* Sacramento, California, May 2009.

[5] Although the National Park and Recreation Association formerly called for 10 acres of open space per 1,000 city residents, the association no longer recommends a single absolute "average" of park acreage per population, in recognition of the fact that it is more relevant that each area plan and program facilities based upon community need. More important than raw acreage is accessibility (location, walking distance) and whether the facility provides needed services to the population in question.

[6] San Francisco Recreation and Park Department, *2008 Clean and Safe Neighborhood Parks Bond - Planning Report*, October 2007, pp. 11-12.

[7] San Francisco Planning Department, *General Plan Recreation and Open Space Element*, see Policy 2.1 and Figure 2: Public Open Space Service Areas.

Several large park and open space areas, including Golden Gate Park, Glen Canyon Park, and John McLaren Park, amount to about one-half of the total department-owned acreage in recreational and open space use. In addition, smaller areas with unique attributes, such as water features or hilltop vista points, attract residents from the entire City and function as City-serving open spaces even though they are smaller in size. Unlike neighborhood facilities, City-serving parks and open spaces provide programs, activities, or recreation opportunities that serve the City as a whole.

San Franciscans also benefit from the Bay Area regional open space system. The National Park Service operates the Golden Gate National Recreation Area in Marin, San Francisco, and San Mateo Counties and includes attractions such as Muir Woods National Monument, the Marin Headlands, Fort Point National Historic Site, Alcatraz Island, the San Francisco Maritime National Historical Park, Ocean Beach, and Fort Funston. The Presidio Trust and the National Park Service each operate a portion of the Presidio. Other federal lands include the Point Reyes National Seashore in Marin County. State park and recreation areas that benefit San Francisco residents include attractions such as Mount Tamalpais State Park, Angel Island State Park, and the Candlestick Point State Recreation Area. Regional resources include the East Bay Regional Park District-owned public open spaces in Alameda and Contra Costa Counties,[8] the Midpeninsula Regional Open Space District-owned public open spaces in San Mateo and Santa Clara Counties,[9] and county park and recreation areas throughout the larger Bay Area. In addition, thousands of acres of watershed and agricultural lands are preserved as open spaces by water and utility districts, i.e., a portion of the San Francisco Peninsula watershed lands in San Mateo County and a portion of the Alameda Creek watershed lands in eastern Alameda County.

Nearby Recreational Facilities[10]

There are a number of Citywide public and private recreational facilities near the Project Site. The San Francisco Golf Club and the Olympic Country Club Golf Course are to the south. The San Francisco Zoo and Fort Funston are located west of the Project Site along Ocean Beach. Within a 1-mile radius of the Project Site, there are several district, neighborhood, and/or subneighborhood parks and open spaces, including the 3.1-acre Rolph Nicol Playground (about 0.9 mile north), the 1.75-acre Junipero Serra Playground (about 0.5 mile northeast), the 5.0-acre Aptos Playground (about 0.9 mile northeast), the 1.2-acre Merced Heights Playground (about 0.4 mile east), the 3.8-acre Brooks Park (about 0.6 mile east), and the 0.5-acre Lakeview/Ashton Mini-Park (about 0.85 mile east). There are more parks within a 2-mile radius of the Project Site, including unique facilities or open spaces such as the 30.8-acre Pine Lake Park (about 1.3 miles

[8] The East Bay Regional Park District is the largest regional park district in the nation and includes 65 parks and over 1,100 miles of trails on more than 98,000 acres.
[9] The Midpeninsula Regional Open Space District has 26 open space preserves (24 of which are open to the public) and has permanently preserved over 57,000 acres of open space.
[10] Distance measurements are taken from Juan Bautista Circle.

northwest), the 34.8-acre Sigmund Stern Recreation Grove (about 1.2 miles north), the 4.9-acre Hawk Hill Park (about 2 miles north), the 7.0-acre Golden Gate Heights Park (about 2.2 miles north), the 40.7-acre Mount Davidson Park (about 1.9 miles northeast), and the 24.7-acre Balboa Park (about 1.8 miles east). Other district, neighborhood, and/or subneighborhood parks within the 2-mile radius include the 4.1-acre South Sunset Playground (about 1.75 miles northwest), the 8.0-acre McCoppin Square (about 1.8 miles north), the 8.9-acre Parkside Square (about 1.45 miles north), the 7-acre Larsen Park (about 1.55 miles north), the 2.0-acre West Portal Playground (about 1.75 miles northeast), the 11.1-acre Minnie Lovie Ward Recreation Center (about 1.1 miles east), the 2.7-acre Cayuga Playground (about 1.5 miles east), the 2.4-acre Sunnyside Playground (about 2 miles east), the 0.6-acre Brotherhood/Chester Mini-Park (about 0.5 mile southeast), the 0.6-acre Brotherhood/Head Mini-Park (about 0.8 mile southwest), the 0.13-acre Randolph/Bright Mini-Park (about 0.8 mile southeast), the 0.16-acre Lessing/Sears Mini-Park (about 1.4 miles southeast), and the 1.8-acre Alice Chalmers Playground (about 1.8 miles southeast). In terms of the different service areas identified by the City, i.e., city, district, neighborhood, and subneighborhood, Parkmerced neighborhood residents would have accessible subneighborhood and neighborhood parks within one-quarter mile of the eastern edge of the neighborhood (the Merced Heights Playground to the east, the 'Peace Park' to the south, and the Brotherhood/Chester Mini-Park to the southeast). In terms of City-serving parks and open space, the Lake Merced Complex (approximately 614 acres) is within a quarter mile of the western edge of the Project Site.

Adjacent Recreational Facilities

Lake Merced Park and the Harding Park and Fleming Golf Courses are west of the Project Site across Lake Merced Boulevard. The Lake Merced Complex, including the Harding Park and Fleming Golf Courses, is approximately 614 acres and is under the jurisdiction and ownership of the SFPUC. 'Peace Park', on the north side of Brotherhood Way west of Chumasero Drive (near the 800 Brotherhood Way development site) is a Department of Public Works open space. Existing recreational facilities on the San Francisco State University campus, immediately north of the Project Site, include an existing indoor 160,000-gross-square-foot gymnasium building with a basketball/volleyball court and a swimming pool; Cox Stadium, an outdoor stadium used for soccer; and Maloney Field, which is used for baseball and has an adjacent practice field that is used for multiple purposes, and tennis courts. All of these facilities are located in the central portion of the campus west of or adjacent to the valley between University Park North and the academic core. Another softball field is also located at the corner of Lake Merced Boulevard and Font Boulevard. As part of the *Campus Master Plan*, the University intends to improve connections to district open space and the existing Parkmerced open space network.[11]

[11] San Francisco State University, *San Francisco State University Campus Master Plan*, p. 60.

Recreational Facilities on the Project Site

There are about 75 acres of existing open space throughout the 152-acre Project Site in a network of lawns, including the Meadow lawn area located west of Juan Bautista Circle (the Commons), courtyards, private open space areas, and three playgrounds (see Figure III.5: Existing Open Space Plan, in Chapter III, Project Description, p. III.13). Also included in this network of open space are the neighborhood's landscaped streets, roundabouts, and boulevards. The playground facilities are located in the northwest corner of the Project Site near the intersection of Vidal Drive and Arballo Drive, in the southwest corner of the Meadow near the intersection of Gonzalez Drive and Arballo Drive (west central portion of the Project Site), and at the southeastern corner of the Project Site near the intersection of Chumasero Drive and Font Boulevard.

PARK AND RECREATION NEEDS

General Plan Open Space Element

The Open Space Element in the *General Plan* notes that "While the number of neighborhood parks and facilities is impressive, they are not well distributed throughout the City…The [unequal distribution] merits correction where neighborhoods lacking parks and recreation facilities also have relatively high needs for such facilities." The Open Space Element defines "high need areas" as areas with high population density or high percentages of children, seniors, or low-income households relative to the City as a whole. The Open Space Element defines "deficient" areas as areas that are not served by public open space, areas with population that exceeds the capacity of the open spaces that serve it, or areas with facilities that do not correspond well to neighborhood needs.

High need areas and deficient areas are identified in the Open Space Element, based on information from the 1980 U.S. Census.[12] A park deficits area is identified for a small portion of the eastern part of the Parkmerced neighborhood. This indicates that it is not sufficiently served by public open space; however, this area of the Parkmerced neighborhood has a privately owned playground near the intersection of Font Boulevard and Chumasero Drive, and other privately owned publicly accessible open space on the east side of the Project Site. The Open Space Element also identifies the Parkmerced neighborhood as not within a high need area for any of the demographic categories studied.[13] The Planning Department is revising the Recreation and Open Space Element. The revision, which is still in draft form, is undergoing environmental

[12] San Francisco Planning Department, *General Plan* Recreation and Open Space Element, Figure 3 through Figure 8 and Map 9.
[13] San Francisco Planning Department, *General Plan* Recreation and Open Space Element, Figure 5 through Figure 8.

review and is not yet official City policy. Similar to the current Recreation and Open Space Element, this proposed revision shows Parkmerced outside of a high need area.[14]

Recreation and Park Department Recreation Assessment

In 1998, the City initiated the "Great Parks for a Great City Assessment Project" to determine the condition of the park system as well as to determine future needs. In August 2004, the RPD published a *Recreation Assessment Report* that evaluated the recreation needs of San Francisco residents.[15] Nine service area maps were developed for the *Recreation Assessment Report*. The service area maps were intended to assist RPD staff and City decisionmakers in assessing where services are offered, how equitable the service delivery is across the City, and how effective the service is in light of the service area's demographics. The maps define service areas by the capacity of the facility as designed and, in some cases, as actually being used, not by distance. Maps are provided for ball fields, pools, outdoor basketball courts, multi-use / soccer fields, recreation centers and tennis courts. The service area maps show that the eastern and northern portions of the Parkmerced neighborhood are within the defined service areas of RPD recreation centers (Merced Heights Park), basketball courts (Merced Heights Park and Junipero Serra Playground), tennis courts (Merced Heights Park), and ballfields (Junipero Serra Playground). The Parkmerced neighborhood is not within the service areas of RPD swimming pools, multi-use fields, or soccer pitches.[16]

IMPACTS

SIGNIFICANCE CRITERIA

The Planning Department's Initial Study Checklist Form provides a framework of topics to be considered in evaluating a project's impacts under CEQA. Implementation of a project could have a potentially significant impact related to Recreation if the project were to:

- J.a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated;
- J.b Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment; or
- J.c Physically degrade existing recreational resources.

[14] San Francisco Planning Department, Draft Recreation and Open Space Element, May 2009, Figure 2: High Needs Areas, p. 19. Website: http://openspace.sfplanning.org/docs/Recreation_and_Open_Space_Element.pdf., accessed November 17, 2009.
[15] San Francisco Recreation and Park Department, *Recreation Assessment Report*, August 2004 (hereinafter referred to as "*Recreation Assessment Report*").
[16] *Recreation Assessment Report.*

METHODOLOGY

For purposes of this analysis, parks are generally defined as areas of land set aside for various recreational opportunities for the public. Recreational facilities are those structures and/or improvements that are built at parks (e.g., benches, picnic tables, tennis courts, dog runs, gardens, etc.). Open space is generally defined as an undeveloped park area that may have a planted area not actively maintained by the department and is neither an actively used park land nor a designated natural area, such as right of way patches or unimproved lots.[17] Therefore, parks and recreational facilities are typically used interchangeably, whereas open space areas refer to those areas where the land is either kept in its natural state or being managed in order to return the land to its natural state.

In determining whether the Proposed Project would have a significant adverse impact on recreational facilities, this analysis considers the surrounding recreational facilities, the existing capacity of those facilities, and the expected recreational improvements that would be included as part of the Proposed Project. This analysis assumes that if there are a variety of recreational facilities within a service distance with sufficient capacity, there would not be a significant adverse effect. However, this analysis does not assume that a lack of proscribed capacity for each type of recreational activity in and of itself means that there would be significant adverse impact. This analysis also considers the cumulative benefit of improvements associated with the Proposed Project to the City's overall open space and recreational network.

IMPACT EVALUATION

Impact RE-1: Construction of the Proposed Project would increase the use of existing park and recreational facilities, but not to such an extent that there would be a significant adverse effect on these facilities. ***(Less than Significant)*** **(Criteria J.a, J.b, J.c)**

Implementation of the Proposed Project would result in an increase of about 12,950 residents (for a total population of about 20,290 persons) and about 1,215 employees (for a total of about 1,320 employees) over the next 20 years (to 2030). The increase in population and employment on the Project Site would result in an increased demand for and use of existing neighborhood parks, recreational facilities, and open space, as well as increased demand for and use of the nearby City, state, and federal recreational facilities.

Parkmerced is located in an area that has a unique concentration of regional-attracting private and public open spaces and recreational facilities, which taken together, provide a wide range of nature-based active and passive recreational opportunities. Historically, this unique concentration

[17] San Francisco Recreation and Park Department, *San Francisco Park Maintenance Standards: The Manual and Evaluation Form*, May 2005, p. 17.

of recreational and open space resources has not been easily accessed by surrounding land uses including Parkmerced. One of the goals of the Proposed Project is to increase access to and from adjacent City and federal recreational facilities to the west and to the north such as the Lake Merced Complex, Fort Funston, and the San Francisco Zoo. There is also a variety of public playgrounds and parks in the vicinity that are easily accessible by foot, bike, or transit, such as Junipero Serra, West Portal, and Aptos Playgrounds to the northeast and Merced Heights Playground and Brooks Park to the east.

The subneighborhood-, neighborhood-, and City-serving recreation facilities within a quarter mile of the Project Site (Merced Heights Park, Brotherhood/Chester Mini-Park, the Peace Park open space, and the Lake Merced Complex) would provide a ratio of approximately 30 acres of public parkland per 1,000 residents. This ratio is higher than the current Citywide ratio of 7.5 acres of public parkland per 1,000 residents as well as the ratio of 5.5 acres of public parkland per 1,000 residents identified in the City's *General Plan*. Thus, given the wide variety and quantity of nearby public open space and recreational opportunities, the anticipated on-site population (about 22,120[18]) would not increase the use of these public facilities such that substantial physical deterioration of existing facilities would occur or be accelerated. The impacts on existing public open space and recreational facilities would be less than significant and no mitigation measures would be required.

While the Proposed Project would not require construction of new or expanded recreational facilities to serve the demand from the increased resident and employed population, the Proposed Project includes the construction of new parks, recreational facilities, and open space (see Figure III.8: Proposed Open Space Plan, in Chapter III, Project Description, p. III.21). At buildout, the Proposed Project would include approximately 68 acres of parks and open space.[19] The Proposed Project would provide open space in a network of neighborhood parks, public plazas, and greenways. There are 24 playgrounds and 7 neighborhood parks proposed throughout the development area, primarily adjacent to residential uses. New athletic playing fields for sports including, but not limited to, lacrosse, soccer, baseball, and softball, community gardens, an organic farm, an off-leash dog area,[20] and walking and biking paths would be added to serve the residents, neighboring community, and adjacent schools. These facilities would be maintained by the Project Sponsor and would not place any additional burden on the RPD. An additional component of the Proposed Project's 68 acres of open space would be provided through a combination of private or semi-private open space areas. Similar to the configuration of existing

[18] See Section V.C, Population and Housing, for assumptions about the number of new residents and employees in San Francisco and the total number of residents and employees that would result with the Proposed Project.
[19] The 68 acres of open space would be maintained by the Project Sponsor.
[20] An off-leash dog area is likely to be constructed on the Project Site. The exact location of the run has yet to be determined, but it would be in an area that would not conflict with any sensitive natural habitat and/or nesting areas.

interior open space courtyards between the townhouse apartments, new courtyards would also be incorporated into the Proposed Project adjacent to new and existing residential buildings. Private open space would also be incorporated into the design of new buildings in the form of landscaped roof decks and balconies.

The proposed on-site system of private parks, playground, and open spaces would provide a ratio of about 3.4 acres of private, publicly accessible parkland per 1,000 residents within the Project Site. The Proposed Project would also add approximately about 1,595 jobs (for a total of 1,830 on-site employees). This employment could result in a total daytime population of about 22,120 persons (proposed resident population [20,290] + total proposed on-site employees [1,830]). Counting the entire daytime population as a part of the population served by the parks on the Project Site, the private parks-to-population ratio would be about 3.2 acres per 1,000 employees/residents. The publicly accessible recreation and open space being added with the Proposed Project would further reduce the already less-than-significant impacts on existing facilities.

Development of the Proposed Project's parks and recreational facilities would require construction activities, which could vary depending on the location and type of work. If existing structures are located on new park sites on the Project Site, these structures would require demolition. Sites would be cleared and graded and construction of these new parks would include installation of utilities (electrical, water, sanitary sewer, and storm drainage); hardscape (e.g., concrete, asphalt, stone, walls, sport-court and play area surfacing, decking/boardwalks); new or renovated site structures (e.g., restrooms, picnic/shade shelters, kiosks, pavilions, overlooks, piers); and site furnishings (e.g., benches, picnic tables, drinking fountains, play equipment, fencing, artwork, lighting). Site planting would include installation of irrigation systems and would focus on re-vegetation and restoration of native plant communities, where possible. Open space areas would generally not require extensive construction activities, but would require re-vegetation, creation of trails, and other low-impact activities.

Construction of the Proposed Project's parks and recreational facilities would be phased over the 20-year construction period. Construction impacts would be temporary. A discussion of project-related construction impacts, which includes construction of the various park nad recreation facilities, is provided in the applicable sections of this EIR: Section V.E, Transportation and Circulation; Section V.F, Noise; and Section V.G, Air Quality. Since the effects related to construction of the proposed parks, recreational facilities, and open space on the Project Site would be addressed as part of the analysis of construction impacts for the Proposed Project as a whole. Construction of parks and open space on the Project Site would not, by itself, result in significant impacts, and no mitigation measures would be required.

The Project Site does not contain any existing publicly owned recreational facilities. The existing lawn areas, the three playgrounds, the Commons, and other open space on the Project Site are privately owned but are accessible to the public. The 75 acres of existing open space would be removed as part of the Proposed Project. These facilities and open spaces would be replaced with about 68 acres of new publicly accessible open space, neighborhood parks, playgrounds, athletic fields for sports including, but not limited to, lacrosse, soccer, baseball, and softball, and pathways, to be owned and managed by the Project Sponsor, resulting in a decrease of publicly accessible open space about 7 acres. Although the proposed project would cause a decrease in publicly accessible open space, this decrease would not result in a significant loss of open space or recreational facilities, given the large amount of public open space in the vicinity of the Project Site. Therefore, the impact would not be significant and no mitigation measures are required.

Impact RE-2: Construction of the Proposed Project would not significantly contribute to cumulative impacts on recreational use to existing public parks or recreational facilities. ***(Less than Significant)***

The Proposed Project's potential contribution to cumulative recreation impacts is also evaluated in the context of existing, proposed, and reasonably foreseeable future development expected in the City. The Association of Bay Area Governments estimates an increase of 68,320 households, 124,800 persons, and 179,370 jobs from 2010 to 2030.[21] Cumulatively, buildout of the Proposed Project, in combination with other cumulative projects, e.g., mixed-use projects at 77-111 Cambon Drive and at 1150 Ocean Avenue (Balboa Park Station Area Plan), residential developments at 800 Brotherhood Way, at 445 Wawona Street (Ardenwood), and at 700 Font Boulevard, and the *San Francisco State University Master Plan*, is estimated to increase the City's population by about 16,850 persons by 2030.[22] Combined with a projected Year 2030 residential population of 20,290 residents on the Project Site, there would be about 23,760 new residents. The Proposed Project would provide parks, recreational facilities, and open space to accommodate the expected increase in demand resulting from the Proposed Project. Together with the existing nearby City-owned network of parks and recreational facilities, as well as the anticipated augmentation to this network as a result of the passage of the 2008 Clean and Safe Neighborhood Parks Bond,[23] there are expected to be additions to the City's park and open space acreage that would accommodate the Proposed Project and foreseeable future development in the City. Therefore, the Proposed Project would not contribute to any cumulative adverse impacts on recreation. No mitigation is required.

[21] ABAG *Projections 2009*, p. 92.
[22] The population data and projections are based on information provided by the San Francisco Planning Department as part of the *19th Avenue Corridor Study*, February 12, 2010.
[23] San Francisco Recreation and Park Department, *2008 Clean and Safe Neighborhood Parks Bond - Planning Report*, October 2007, pp. 11-12.

K. UTILITIES AND SERVICES SYSTEMS

The Proposed Project would increase the intensity of development on the site and consequently increase demand for, and use of, public utilities on the Project Site. The Setting discussion describes the existing public utilities on the site, and the Impacts discussion describes the impacts of the Proposed Project on the existing water, wastewater, and solid waste systems. Stormwater is discussed in Section V.O, Hydrology and Water Quality.

SETTING

The Project Site and vicinity are currently served by public utilities and service systems, including water, wastewater collection and treatment, and solid waste collection and disposal.

WATER

Regional Water System

Water for the Project Site is provided by the San Francisco Public Utilities Commission (SFPUC), which manages a complex Regional Water System (RWS) that provides water to approximately 2.5 million people in San Francisco, Santa Clara, San Mateo, Alameda, and Tuolumne Counties. The RWS consists of three integrated water supply and conveyance systems: the Hetch Hetchy, Alameda, and Peninsula systems. The SFPUC is currently implementing the Water System Improvement Program (WSIP), which involves a series of projects to improve water infrastructure.

Water Supply

Effective January 1, 2002, the State of California adopted Senate Bill 610 (SB 610). SB 610 requires land use planning entities, such as the City and County of San Francisco, when evaluating large development and redevelopment projects,[1] to request an assessment of the availability of water supplies from the water supply entity that will provide water to a project. The Water Supply Assessment (WSA) is performed in conjunction with the land use approval process associated with a project and must include an evaluation of the sufficiency of the water supplies available to the water supplier to meet existing and future demands, including the demand for a project over a 20-year time period that includes normal, single-dry, and multiple-dry years.

[1] Under SB 610, large projects are defined as 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, or 3) a commercial building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

In 2005, the SFPUC prepared the *Urban Water Management Plan*[2] (2005 UWMP) as required in Section 10610.4 of the California Water Code. When a new development project is accounted for in the demand projections of a UWMP, the WSA for that project can rely on the UWMP, and no further analysis is necessary. In an effort to streamline the water supply planning process within San Francisco, the SFPUC adopted a resolution in 2006 to allow for all development projects requiring a WSA under SB 610 to rely solely on the SFPUC's 2005 UWMP without having to prepare individual WSAs. However, because the Planning Department and the SFPUC are currently engaged in planning for various large land development proposals[3] that go beyond the future developments considered in the 2005 UWMP, the SFPUC concluded that its 2005 UWMP no longer accounted for every qualifying project in San Francisco. Therefore, until the 2010 UWMP is prepared, a WSA must be prepared for any qualifying project not accounted for in the 2005 UWMP, including the Parkmerced Project. The WSA must consider the SFPUC's current and projected supplies in light of projected demands associated with new growth not included in the 2005 UWMP.

A WSA[4] has thus been prepared for the Parkmerced Project (see Appendix D). The following discussion is based on that document.

Sources of Water Supply

In Fiscal Year 2007/08 the SFPUC delivered an annual average of approximately 256.7 million gallons per day (mgd) of water.[5] Approximately 85 percent of that water supply was provided by the Hetch Hetchy system, which diverts water from the Tuolumne River. The balance (approximately 15 percent) 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. A small portion of retail[6] demand is met through locally produced groundwater, used primarily for irrigation at local parks and on highway medians, and by recycled water. The recycled water is used for wastewater treatment processes, sewer box flushing, and similar wash-down operations.

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[2] SFPUC, *2005 Urban Water Management Plan for the City and County of San Francisco*, December 2005 (hereinafter referred to as "2005 UWMP").

[3] Three large projects are proposed: Parkmerced, Treasure Island – Yerba Buena Island Redevelopment Plan, and Candlestick Point – Hunters Point Shipyard Phase II Project.

[4] PBS&J, *Final Water Supply Assessment for the Proposed Parkmerced Project*, November 2009 (hereinafter referred to as "WSA"). A copy of the WSA can be found in Appendix D.

[5] WSA, Table 4-1, p. 4-2

[6] SFPUC's retail customers are homes and businesses, mostly in San Francisco, served directly by the SFPUC. Retail customers also include Treasure Island and customers outside the City at the San Francisco Airport, the Town of Sunol, Lawrence Livermore Laboratories, Castlewood, and Groveland Community Services District.

Groundwater

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

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, the use of groundwater for the water supply system has been minimal since surface water supplies were developed in the Peninsula and Alameda watersheds and the Hetch Hetchy system was completed in the 1930s.[7]

The SFPUC is currently studying implementation of the San Francisco Groundwater Supply Project, created as part of the WSIP. This project would expand the use of the local groundwater source to provide ongoing supply and improve reliability during droughts, maintenance conditions, and after an earthquake or other emergency. Up to six wells and associated facilities would be constructed in the western part of San Francisco to extract up to 4 mgd of water from the Upper Westside 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.

Recycled Water

For 50 years prior to 1981, San Francisco's McQueen Treatment Plant provided recycled water to Golden Gate Park for irrigation. Because of changes in regulations, the City closed the McQueen plant and discontinued use of recycled water in Golden Gate Park. Currently, disinfected secondary-treated[8] 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 system and also for dust control and other purposes at construction sites. Current use of recycled water for these purposes in San Francisco is less than 1 mgd.[9]

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[7] 2005 UWMP.

[8] Secondary effluent has undergone treatment to remove floatable materials (such as oil and grease), settleable materials (such as sand and gravel), and a substantial portion of the organic compounds in the waste. In San Francisco, it is treated with chlorine to kill bacteria, and the chlorine is removed before being discharged.

[9] WSA, p. 2-6.

In March 2006, the SFPUC updated the *Recycled Water Master Plan* for the City.[10] The *Recycled Water Master Plan* identified where and how San Francisco could most feasibly develop recycled water in the City and provided strategies for implementing recycled water projects. 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.[11]

Several projects involving recycled water are being considered. The San Francisco Recycled Water Program currently includes the Westside, Harding Park, and Eastside Recycled Water Projects. These proposed projects would provide up to 4 mgd of recycled water for landscape irrigation, toilet flushing, and industrial purposes. The Westside Recycled Water Project would provide recycled water to several sites on the west side of San Francisco. A proposed water treatment facility in Golden Gate Park would produce recycled water for the San Francisco Zoo, Golden Gate Park, and Lincoln Park Golf Course. The water would be used for landscape irrigation and for non-potable uses at the zoo and Golden Gate Park, including the California Academy of Sciences. The SFPUC has begun the project-specific environmental review for this project.

Water Conservation

The SFPUC is committed to demand-side management[12] programs, and the City's per capita water use has dropped by about one-third since 1977 due, in part, to these programs.[13] The first substantial decrease occurred after the 1976–77 drought. Gross per-capita water use dropped from 160 gallons to 130 gallons per capita per day. Despite continuous growth in the City since then, water demands have remained lower than pre-drought levels. In addition to plans for repairs and improvements to the water supply system infrastructure, the WSIP calls for increased water conservation. The SFPUC's current 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 14 Best Management Practices (BMPs). The BMPs are:

- BMP 1 – Water Survey Programs for Single- and Multi-Family Residential Customers
- BMP 2 – Residential Plumbing Retrofit
- BMP 3 – System Water Audits, Leak Detection and Repair
- BMP 4 – Metering with Commodity Rates for All New Connections
- BMP 5 – Large Landscape Conservation Programs and Incentives

[10] WSA, p. 2-7.
[11] WSA, p. 2-5.
[12] Demand-side management involves programs that discourage water use and encourage conservation, with the objective of reducing overall water demand.
[13] WSA, p. 2-7.

- BMP 6 – High Efficiency Washing Machine Rebate (under investigation)
- BMP 7 – Public Information Programs
- BMP 8 – School Education Program
- BMP 9 – Conservation Programs for Commercial, Industrial, and Institutional Accounts
- BMP 10 – Wholesale Agency Assistance Programs
- BMP 11 – Conservation Pricing
- BMP 12 – Conservation Coordinator
- BMP 13 – Water Waste Prohibition
- BMP 14 – Residential Ultra Low Flow Toilet Replacement Program

With this conservation program, the SFPUC anticipates that gross per household consumption would be reduced from 91.5 gallons per capita per day (the amount in 2009) to 87.4 gallons per capita per day by 2018, which would result in a conservation supply potential of approximately 4.0 mgd annually.

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 WSIP in 2005. Under the WSIP, as originally developed, the SFPUC proposed to meet projected 2030 average daily purchase requests of 300 mgd in the RWS service area by increasing diversions from the Tuolumne River under its existing water rights and developing new local resources through a combination of additional conservation, water recycling, and groundwater supply programs.[14] 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 several water supply combinations that could meet future demand. After certification of the Final PEIR by the Planning Commission, on October 30, 2008, the SFPUC adopted the Phased WSIP option.

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.[15] The remaining 20 mgd of demand would be met through water conservation, recycling, and groundwater, with 10 mgd provided by wholesale customers and

[14] WSA, p. 2-8.
[15] WSA, p. 2-8.

10 mgd provided by local projects within San Francisco. Dry-year supplies would be provided by the Westside Groundwater Basin Conjunctive Use Project (in San Mateo County), and implementing 2 mgd of 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.

Water Treatment Capacity

Water from the Hetch Hetchy system is delivered to customers without filtration. Water from the Alameda system is treated at the Sunol Valley Water Treatment Plant (WTP), in Alameda County. Peninsula system water and any Hetch Hetchy or Alameda system water stored in Peninsula reservoirs is treated at the Harry Tracy WTP, in northern San Mateo County. These treatment plants have existing treatment capacities of 120 mgd and 160 mgd, respectively. To ensure treatment capacity into the future, the SFPUC is planning to upgrade the Sunol Valley WTP to reliably treat 160 mgd and increase the plant's storage capacity of treated water. 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. 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 demands during maintenance and provide emergency supplies in the event of loss of the Hetch Hetchy system supply. In addition, the 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.

Water Shortage and Dry-Year Planning

To ensure that water could be delivered continuously throughout a drought, the SFPUC has 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 reduction has been established in contractual agreements between the SFPUC and its customers in the Water Shortage Allocation Plan. The SFPUC has adopted the Retail Water Shortage Allocation Plan to formalize the three-stage program of action to be taken in San Francisco. 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 went 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 and additional reductions in retail allotments would be implemented, as determined by the SFPUC.

Current and Future Water Supplies

As discussed above on p. V.K.5, the Phased WSIP allocates 81 mgd to retail customers. In addition, approximately 3.5 mgd of groundwater is obtained from local groundwater basins. 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 V.K.1 provides an estimate of retail water supplies from 2010 through 2030. As shown in the table, water supply is projected to increase from 84.5 mgd in 2010 to 94.5 mgd in 2015 (at completion of the WSIP projects) and to remain at that level through 2030.

Current and Future Water Demand

To update the water supply and demand estimates provided in the 2005 update of the UWMP, the SFPUC developed the *Water Supply Availability Study*.[16] The study 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 Proposed Project and other major development proposals not anticipated in the 2005 UWMP.

To update future water demand, the *Water Supply Availability Study* 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, which were designed to closely match the recently adopted Association of Bay Area Governments' *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.

[16] WSA, p. 4-2.

Table V.K.1: SFPUC Estimated Retail Water Supplies, 2010–2030

Water Supply Sources	2010	2015	2020	2025	2030
Current Surface Water Supply Sources					
SFPUC RWS (Surface water: Tuolumne River, Alameda & Peninsula)	81.0	81.0	81.0	81.0	81.0
Current Groundwater Sources					
Groundwater: In-City Irrigation Purposes	2.5	0.5	0.5	0.5	0.5
Groundwater: Other Retail Users	1.0	1.0	1.0	1.0	1.0
Groundwater: Treated for Potable—Previously Used for In-City Irrigation Purposes	0.0	2.0	2.0	2.0	2.0
Groundwater Subtotal	*3.5*	*3.5*	*3.5*	*3.5*	*3.5*
Current Water Supply Subtotal	*84.5*	*84.5*	*84.5*	*84.5*	*84.5*
Future Water Supply Sources					
Groundwater Development: Potable from SF GWSP (Westside Groundwater Basin)	0.0	2.0	2.0	2.0	2.0
Recycled Water Expansion Irrigation	0.0	4.0	4.0	4.0	4.0
Supply Conservation Program	0.0	4.0	4.0	4.0	4.0
WSIP Supply Subtotal	*0.0*	*10.0*	*10.0*	*10.0*	*10.0*
Total Retail Supply (Current and WSIP Supplies)	***84.5***	***94.5***	***94.5***	***94.5***	***94.5***

Source: PBS&J, *Final Water Supply Assessment for the Proposed Parkmerced Project*, November 2009

Estimates of water demand for major development proposals[17] in San Francisco were based on information provided by project sponsors. The water demand estimates were included in the WSA prepared for the Proposed Project.

Table V.K.2 provides an estimate of total SFPUC Retail Water Demands from 2010 through 2030 that 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 demand from the Proposed Project, is estimated to increase from 91.81 mgd in 2010 to approximately 93.42 mgd by 2030.

[17] Parkmerced Project, Candlestick Point–Hunters Point Shipyard Phase II Project, and Treasure Island – Yerba Buena Island Redevelopment Plan.

Table V.K.2: SFPUC Estimated Average Annual Retail Water Demand

Users, Facilities, and Entities	Projected Water Demand (mgd)				
	2010	**2015**	**2020**	**2025**	**2030**
San Francisco Residential (Single and Multiple Family)	44.70	43.80	43.20	42.90	42.90
New San Francisco Residential (Generated by Projects and Incremental Growth)	—	0.47	0.95	1.42	1.89
Subtotal	*44.70*	*44.27*	*44.15*	*44.32*	*44.79*
Non-Residential - Business/Industrial San Francisco	30.21	30.52	30.83	31.14	31.73
Subtotal	*74.91*	*74.79*	*74.97*	*75.46*	*76.52*
Unaccounted-for System Losses	7.30	7.30	7.30	7.30	7.30
Subtotal	*82.21*	*82.09*	*82.27*	*82.76*	*83.82*
Other Retail Demands	4.90	4.90	4.90	4.90	4.90
Lawrence Livermore Laboratory; Groveland Community Services District	1.20	1.20	1.20	1.20	1.20
City Irrigation	2.5	2.5	2.5	2.5	2.5
Castlewood Community	1.0	1.0	1.0	1.0	1.0
Total Retail Demand	***91.81***	***91.69***	***91.87***	***92.36***	***93.42***

Notes:
mgd – million gallons per day
Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals.

Source: PBS&J, *Final Water Supply Assessment for the Proposed Parkmerced Project*, November 2009

Water Distribution System

San Francisco's water supply is delivered to the City in several major pipelines and stored in reservoirs located within the City. Water is distributed within San Francisco by the SFPUC's distribution system. The City's internal distribution system is divided into the Eastside (roughly from Twin Peaks to the Bay) and the Westside (roughly from Twin Peaks to the ocean) systems. Water is delivered to the Westside distribution system by two pipelines and stored in Sunset Reservoir and Merced Manor Reservoir, located within 1.5 miles of the Project Site. Several smaller reservoirs, in addition to storage tanks and pumps, provide water to individual distribution zones based on elevation.

The SFPUC provides water to the Project Site through two main delivery points (also called services) that are metered. A 16-inch service is at the intersection of Font Boulevard and 19th Avenue; the other service is a 12-inch pipe at the intersection of Font Boulevard and Lake Merced Boulevard. The existing on-site distribution system consists of ductile iron pipes ranging from 8 to 16 inches in diameter. The existing plumbing fixtures at Parkmerced have been repaired and replaced over time, and are moderately efficient.

WASTEWATER

San Francisco's wastewater system is a combined system that conveys and treats both sanitary sewage and stormwater. Large underground structures (storage/transport boxes) collect sewage and stormwater and transport these flows, via pump stations, to treatment facilities.

The City's wastewater collection system is divided into the Bayside (roughly from Twin Peaks to the Bay) and the Westside (roughly from Twin Peaks to the ocean) drainage basins. Each drainage basin is divided into sub-basins. The Parkmerced site is located within the Lake Merced sub-basin of the Westside drainage basin.

The Westside System, which was completed in 1994, consists of the Richmond, Westside, and Lake Merced transports, the Westside Pump Station, the Oceanside Water Pollution Control Plant, the Southwest Ocean Outfall, and seven combined sewer overflow near-shore discharge points.

Wastewater from the Westside drainage basin is treated to secondary effluent[18] quality at the Oceanside Water Pollution Control Plant. The plant has a total capacity of 65 mgd and currently treats an average dry weather flow of about 16.3 mgd. During light rainfall, all flows in the combined sewer/storm drain system receive secondary treatment. When rainfall is heavier, 43 mgd of secondary effluent and up to 22 mgd of primary effluent[19] may be discharged.

Treated wastewater from the Oceanside Water Pollution Control Plant is discharged in the Pacific Ocean 4.5 miles off shore through the Southwest Ocean Outfall. Wastewater is discharged from the City's wastewater treatment plants under a National Pollutant Discharge Elimination System permit issued to the SFPUC by the Regional Water Quality Control Board, San Francisco Bay Region.

SOLID WASTE

Sunset Scavenger Company, recently renamed Recology, and Golden Gate Disposal, both subsidiaries of Norcal Waste Systems, Inc., provide solid waste collection services for residential and commercial garbage and recycling at Parkmerced. Non-hazardous solid waste is taken to the Altamont Landfill, located east of Livermore in Alameda County. The Altamont Landfill is a regional landfill that handles residential and construction waste. It has a permitted maximum disposal of 11,500 tons per day and received about 1.31 million tons of waste in 2005 (the most

[18] Secondary effluent has undergone treatment to remove floatable materials (such as oil and grease), settleable materials (such as sand and gravel), and a substantial portion of the organic compounds in the waste. In San Francisco, it is treated with chlorine to kill bacteria, and the chlorine is removed before being discharged.
[19] Primary treatment removes floatable and settleable materials.

recent year reported by the state). The remaining permitted capacity of the landfill is about 45.7 million cubic yards; with this capacity, the landfill can operate until 2032.[20]

Under the California Integrated Waste Management Act of 1989, San Francisco was required to adopt an integrated waste management plan, implement a program to reduce the amount of waste disposed, and have its waste diversion performance periodically reviewed by the Integrated Waste Management Board. The City was required to reduce the amount of waste sent to landfill by 50 percent by 2000. The City met the 50 percent reduction goal in 2000 by recycling, composting, reuse, and other efforts, and achieved 70 percent reduction in 2006. In 2002, the Board of Supervisors set goals of achieving 75 percent diversion by 2010 and zero waste by 2020.[21]

The City of San Francisco has enacted several programs to divert solid waste from the landfill. For example, in June 2009, the Board of Supervisors passed the Mandatory Recycling & Composting Ordinance, which requires all of San Francisco to separate recyclables, compostables, and landfilled trash. The City's Plastic Bag Reduction Ordinance requires the use of compostable plastic, recyclable paper, and/or reusable checkout bags by supermarkets and drugstores, and the Food Service Waste Reduction Ordinance requires restaurants and food vendors to use food ware that is compostable or recyclable rather than styrofoam. The Resource Conservation Ordinance requires City departments to reduce waste, maximize recycling, and buy products with recycled content, and the Mayor's Executive Order on Bottled Water prohibits City departments from using public funds to purchase bottled water. The Construction and Demolition Debris Recovery Ordinance, adopted in 2006, requires preparation of a waste diversion plan and diversion of 65 percent or more of the construction and demolition debris from disposal in a landfill.

IMPACTS

SIGNIFICANCE CRITERIA

The City and County of San Francisco has not formally adopted significance thresholds for impacts related to utilities and service systems. The Planning Department Initial Study Checklist form provides a framework of topics to be considered in evaluating potential impacts under

[20] California Integrated Waste Management Board, Active Landfill Profiles, Altamont Landfill. Available online at: http://www.ciwmb.ca.gov/SWIS/01-AA-0009/Detail/, accessed October 7, 2009.
[21] San Francisco Department of the Environment, website: http://www.sfenvironment.org/our_programs/program_info.html?ssi=3. Accessed November 20, 2009.

CEQA. Implementation of a project could have potentially significant impacts related to utilities if it were to:

- K.a Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- K.b Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- K.c Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- K.d Have sufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements;
- K.e Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- K.f Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- K.g Comply with federal, state, and local statutes and regulations related to solid waste.

Using these criteria, this section provides an analysis of the Proposed Project's impacts on water supply and distribution facilities, wastewater collection and treatment facilities, and solid waste capacity. Issues related to stormwater are discussed in Section V.O, Hydrology and Water Quality.

IMPACT EVALUATION

Water

Impact UT-1: The Proposed Project would increase the demand for water. *(Less than Significant)* (Criterion K.d)

The Proposed Project would increase the number of residential units on the Parkmerced Site, thereby increasing the volume of potable water needed to serve the population. However, the Proposed Project's *Sustainability Plan* includes a number of measures that would reduce the per-household water use and would shift irrigation water use from potable to non-potable; overall, this would reduce the amount of potable water required.

The *Sustainability Plan* includes a combination of providing high-efficiency fixtures and appliances for new buildings and retrofitting existing building infrastructure to reduce the use of potable water on a per-unit basis. As shown in Table V.K.3, Parkmerced currently uses approximately 0.71 mgd of potable water for domestic use and irrigation. At project buildout, all plumbing fixtures (e.g., faucets, toilets, and showerheads) would be replaced with "efficient

Table V.K.3: Existing Water Demand at Parkmerced

Source of Demand[a]	Potable		Non-Potable		Total	
	MG/yr	mgd	MG/yr	mgd	MG/yr	mgd
Residential (Indoor)	202	0.55	-	-	202	0.55
Non-Residential	-	-	-	-	-	-
Irrigation	58	0.16	-	-	58	0.16
Total	***260***	***0.71***	***-***	***-***	***260***	***0.71***

Notes:
MG/yr – million gallons per year
mgd – million gallons per day
Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals.
[a] Existing demands calculated from residential billing records 2006–2007 and irrigation billing records 2005–2006.

Source: Hydroconsult Engineers, September 2009

fixtures"[22] or "highly efficient"[23] fixtures, resulting in less water use than at present. As shown in Tables V.K.4 and V.K.5, potable water use would decrease from the current amount of 0.71 mgd to 0.647 mgd with efficient fixtures and to 0.538 mgd with highly efficient fixtures, even though the population of Parkmerced would increase from approximately 7,340 to approximately 20,300 residents.[24] Thus, although the total water use by the Proposed Project would increase from 0.71 mgd to 0.98 mgd, the Proposed Project would use less potable water than at present.

A key element of the *Sustainability Plan* is the use of non-potable instead of potable water for irrigation. In December 2008, the Project Sponsor made a formal request to the SFPUC, asking that non-potable water from a City-proposed water recycling facility at the Oceanside Water Pollution Control Plant be made available for irrigation of green spaces and toilet flushing in all new residences. If a municipal supply of recycled water is not available, or if the request is not approved, the Proposed Project may construct facilities on site to meet all or a portion of this non-potable water demand. These facilities could range from groundwater wells to tanks that would hold captured rainwater.

Implementation of the water-related components of the Proposed Project's *Sustainability Plan* would reduce potable water demand. The existing water demand for irrigation is approximately 50 percent greater than would be required to irrigate a more sustainable landscape plan using plants native to the area and plants selected based on local climate conditions. All of the irrigation water currently used on site is potable and all of the stormwater runoff is captured by the combined sewer system., and transported and discharged as waste. There is no capture or reuse of runoff. The proposed *Sustainability Plan* would incorporate water conservation practices, as well as stormwater treatment strategies, to collect stormwater runoff in on-site

[22] "Efficient fixtures" in this context means more efficient than required by the Plumbing Code.
[23] "Highly efficient" fixtures are state-of-the-art and more efficient than "efficient fixtures."
[24] Hydroconsult Engineers, "Technical Memorandum, Parkmerced Project Impacts Analysis, Water and Wastewater Infrastructure and Services," September 18, 2009 hereafter referred to as "Technical Memorandum, Water and Wastewater"). A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

Table V.K.4: Future (2030) Water Demand at Parkmerced with Efficient Fixtures

Source of Demand	Potable		Non-Potable[a]		Total	
	MG/yr	mgd	MG/yr	mgd	MG/yr	mgd
Residential (Indoor)	228	0.624	85.5	0.234	313	0.859
Non-Residential	8.36	0.023	3.58	0.010	11.9	0.033
Irrigation	-	-	31.4	0.086	31.4	0.086
Total	236	0.647	121	0.330	357	0.977
Change from Existing		(-) 9%				37%

Notes:
MG/yr – million gallons per year
mgd – million gallons per day
Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals.
[a] Future non-potable demand includes toilet flushing in new units, all laundry, and all irrigation.

Source: Hydroconsult Engineers, September 2009

Table V.K.5: Future (2030) Water Demand at Parkmerced with Highly Efficient Fixtures

Source of Demand	Potable		Non-Potable[a]		Total	
	MG/yr	mgd	MG/yr	mgd	MG/yr	mgd
Residential (Indoor)	188	0.515	65.3	0.179	253	0.694
Non-Residential	8.36	0.023	3.58	0.010	12	0.033
Irrigation	-	-	31.4	0.086	31	0.086
Total	196	0.538	100	0.275	297	0.813
Change from Existing		(-) 24%				15%

Notes:
MG/yr – million gallons per year
mgd – million gallons per day
Numbers are rounded according to standard rounding practices and may not add up due to hidden decimals.
[a] Future non-potable demand includes toilet flushing in new units, all laundry, and all irrigation.

Source: Hydroconsult Engineers, September 2009

retention basins, allow infiltration, and reuse the water for irrigation. Also under the *Sustainability Plan,* drought-tolerant species would be used for all plantings to reduce the irrigation demand. As a result, potable water use at the Parkmerced Site would decrease from 260 million gallons per year to approximately 196 million gallons per year, a 24 percent decrease, if highly efficient plumbing fixtures were installed and non-potable water was used for irrigation.

As shown in Tables V.K.4 and V.K.5, the *Sustainability Plan* would require that from 0.275 to 0.33 mgd of non-potable water be available to meet the Proposed Project's water demand. Currently, the City does not have the capacity to deliver non-potable water; therefore, the WSA provided a conservative water supply analysis and did not assume that the Proposed Project would use recycled water. Recycled water that could be produced on site from wastewater treatment, groundwater wells, tanks to hold captured rainwater, and a system to recycle graywater[25] was considered an additional water supply source beyond SFPUC's WSIP planned recycled water facilities.

[25] Graywater is wastewater generated by domestic activities such as dish washing, laundry, and bathing.

To assess the adequacy of current and projected future water supplies to meet estimated future demand, including the demand associated with the three major development proposals, including the Proposed Project, and other projected future growth (e.g., background growth from Association of Bay Area Governments' projections), the WSA included a comparison of retail water supply and demand. Table V.K.6 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 shown in Table V.K.2 (actual fiscal year 07/08 demand was 83.9 mgd). 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).[26] After 2015, when the additional 10 mgd local supply is projected to be completed, the WSA shows no expected deficit in supply. It is expected, therefore, that the Parkmerced Project would not contribute to any deficiencies in supply experienced by the SFPUC between 2010 and 2015.

As shown in Table V.K.6, 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 Proposed Project. Thus, during multiple dry-year periods, the SFPUC would need to implement the provisions of the Water Shortage Allocation Plan and the Retail Water Shortage Allocation Plan, which could include voluntary rationing or the curtailment of retail deliveries. With the implementation of the Water Shortage Allocation Plan and the Retail Water Shortage Allocation Plan during multiple dry-year periods, existing and projected future water supplies would be sufficient to meet estimated future water demand.

The Proposed Project's total water demand of 0.98 mgd would account for approximately 1.0 percent of the total retail demand in 2030. This analysis assumes that recycled water would be used for 0.33 mgd of the 0.98 mgd. The existing potable water demand from the Proposed Project is 0.71 mgd; the net increase would be approximately 0.3 percent of the total future retail demand of approximately 93.5 mgd. This increase would not affect the ability of the SFPUC to serve its retail customers.[27]

[26] WSA, p. 5-3.
[27] WSA, p. 6-1.

Table V.K.6: Comparison of Projected Water Supply and Demand for Normal, Single Dry, and Multiple Dry Years (mgd)

Retail Supply and Demand		Normal Year	Single Dry Year	Multiple Dry Year Event		
				Year 1	Year 2	Year 3
2010	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater Supply	3.50	3.50	3.50	3.50	3.50
	Total City Supply	***84.50***	***84.50***	***84.50***	***83.00***	***83.00***
	Total Retail Demand	91.81	91.81	91.81	91.81	91.81
	Surplus/(Deficit)[a]	(7.31)	(7.31)	(7.31)	(8.81)	(8.81)
2015	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	Total City Supply	***94.50***	***94.50***	***94.50***	***93.00***	***93.00***
	Total Retail Demand	91.69	91.69	91.69	91.69	91.69
	Surplus/(Deficit)	2.81	2.81	2.81	1.31	1.31
2020	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	Total City Supply	***94.50***	***94.50***	***94.50***	***93.00***	***93.00***
	Total Retail Demand	91.87	91.87	91.87	91.87	91.87
	Surplus/(Deficit)	2.63	2.63	2.63	1.13	1.13
2025	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	Total City Supply	***94.50***	***94.50***	***94.50***	***93.00***	***93.00***
	Total Retail Demand	92.36	92.36	92.36	92.36	92.36
	Surplus/(Deficit)	2.14	2.14	2.14	0.64	0.64
2030	RWS Supply	81.00	81.00	81.00	79.50	79.50
	Groundwater	3.50	3.50	3.50	3.50	3.50
	WSIP Supply Sources	10.00	10.00	10.00	10.00	10.00
	Total City Supply	***94.50***	***94.50***	***94.50***	***93.00***	***93.00***
	Total Retail Demand	93.42	93.42	93.42	93.42	93.42
	Surplus/(Deficit)	1.08	1.08	1.08	(0.42)[b]	(0.42)[b]

Notes:
mgd – million gallons per day
RWS – Regional Water System
WSIP – Water System Improvement Plan

[a] 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. Ten 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).

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

Source: PBS&J, *Final Water Supply Assessment for the Proposed Parkmerced Project*, November 2009

Given implementation of the *Sustainability Plan*, the Proposed Project would not require an expansion of the SFPUC's water facilities, nor would it have a significant adverse affect on the City's water supply. The population growth accommodated by the Proposed Project would be within the projections used as the basis for demand estimates in the *Water Supply Availability Study*.[28] In addition, the SFPUC has adopted a long-term water management plan and is undertaking a number of efforts to meet projected systemwide demand and ensure the reliability of the system's water supply. As described above on pp. V.K.5–V.K.9, the SFPUC has sufficient water supply and delivery capacity to provide service to the Proposed Project.

If recycled water were to be available for and used on the Project Site, the Proposed Project's water demand for potable water from the RWS would be less than existing demand, and the Proposed Project would have no impact on water supply.

For these reasons, the Proposed Project would have a less-than-significant impact on water supply. No mitigation is required.

Impact UT-2: Operation of the Proposed Project would not contribute considerably to significant cumulative impacts on water supply. (*Less than Significant*)

Several other development projects in the vicinity of the Project Site have been formally proposed or approved, are under consideration by developers, or are reasonably forseeable, including 800 Brotherhood Way, 77–111 Cambon Drive, 700 Font Boulevard, 445 Wawona Street (the Arden Wood site), the 2007–2020 SFSUCMP, Stonestown Galleria, and 1150 Ocean Avenue. Cumulatively, buildout of the Proposed Project, in combination with these other residential and mixed-use developments proposed on nearby sites ("cumulative projects"), would contribute to a demand for additional water supply.

Buildout of the Proposed Project and other cumulative projects in the area is estimated to increase the City's population by about 16,850 persons by 2030. The assumptions and projections in the Water Supply Assessment consider cumulative growth throughout San Francisco's water delivery system. The Water Supply Assessment found that the City's water supply is sufficient to meet cumulative projected demand for anticipated growth through 2030 in all but the second and third year of a multiple dry-year period. During multiple dry-year periods, the SFPUC would need to implement demand management and water conservation measures, which could include voluntary rationing or the curtailment of retail deliveries.[29] With the implementation of these measures during multiple dry-year periods, existing and projected future water supplies would be sufficient

[28] WSA, Sections 4.5 and 6.0, pp. 4-3 to 4-7 and 6-1 to 6-2.
[29] Current SFPUC practices require implementation of the demand management and water conservation measures for all SFPUC customers; these requirements are not a result of the Proposed Project.

to meet estimated future water demand. Therefore, the project would have a less-than-significant contribution to cumulative impacts on water supply. No mitigation is required.

Water Infrastructure

Impact UT-3: The Proposed Project would require new water delivery infrastructure to adequately serve the Project Site. *(Less than Significant)* (Criterion K.b)

Because of the age of the on-site distribution pipes, most of the existing water supply piping would be replaced as part of the Proposed Project. The new on-site distribution system would likely consist of 6- to 16-inch-diameter pipes that would be installed under new streets.[30] This construction activity would involve relatively shallow trenches and would require less excavation than is expected for subsurface foundations and parking garages for proposed new buildings. A meter would be provided for each building that would help track water use.

As described above, implementation of the Proposed Project would not result in a substantial increase in water delivery from the SFPUC that is beyond its ability to supply the Project Site. The existing capacity of the SFPUC infrastructure for delivering water to the Project Site is sufficient to meet the needs of the Proposed Project. Thus, the Proposed Project would have no impact on water infrastructure. No mitigation is required.

Impact UT-4: The cumulative projects would not result in for a need for new water delivery infrastructure. (*Less than Significant*)

Parkmerced and other projects proposed and contemplated in the vicinity would each install their own internal water distribution infrastructure. The existing capacity of the SFPUC infrastructure for delivering water to development sites would be sufficient to meet the needs of each of the cumulative projects. The combined water demand would not result in the need for new or larger water mains. Therefore, the projects would have a less-than-significant impact on water infrastructure and there would be no significant cumulative impact. No mitigation is required.

Wastewater Conveyance and Treatment

Impact UT-5: The Proposed Project would not require new or expansion of wastewater collection or treatment facilities to adequately serve the Project Site. *(Less than Significant)* (Criteria K.a, K.c, K.e)

Existing wastewater and stormwater flows from the Project Site are collected for treatment at the Oceanside Water Pollution Control Plant and are discharged to the Pacific Ocean. The Proposed Project would increase the number of residential units and the amount of commercial space on the Parkmerced Site, thereby increasing the volume of wastewater to be collected and treated. As is

[30] Technical Memorandum, Water and Wastewater, p. 3.

currently the case, the nature of the wastewater generated on the site would be typical of urban uses. In addition, the Proposed Project includes features to reduce the amount of stormwater runoff entering the combined sewer system, which would partially offset the increase in wastewater flows.

Wastewater volumes generated by the Proposed Project would be approximately 0.65 mgd to 0.8 mgd, an increase of approximately 23 percent. This would increase Parkmerced's contribution to the average daily sanitary sewage flow to the Oceanside Water Pollution Control Plant from approximately 3 percent to approximately 4.5 percent during dry weather, resulting in a 1 to 2 percent increase in average dry weather flows to the plant (from about 16.3 mgd to about 16.5 or 16.6 mgd).[31] The plant has the capacity to provide secondary treatment of up to 43 mgd. Therefore, sanitary sewage alone from the Proposed Project would not result in the need for new treatment facilities. Therefore, the Proposed Project would not cause the plant to exceed any treatment requirements established in the NPDES permit.

The San Francisco wastewater collection and treatment system is sized to accommodate combined sanitary sewage and stormwater runoff. The Proposed Project would result in greater sewage volumes, which, in combination with stormwater runoff, could place greater demands on the collection and treatment system. However, the Proposed Project would include construction of a collection system to capture stormwater runoff from buildings, streets, and other non-permeable surfaces and direct it away from the combined sewer system. This would reduce the volume of stormwater runoff entering the combined sewer system by about 48.6 to 56.3 million gallons per year.[32]

With this reduction in overall wet weather flows, the net change in the volume of wastewater discharged into the Oceanside Water Pollution Control Plant would be an increase of 1 to 2 percent. This increase would not result in a substantial additional demand on the capacity of the plant. Therefore, the Proposed Project would not result in combined sanitary sewage and stormwater flows that exceed the capacity of the conveyance or treatment facilities. No new facilities would be required to collect and treat wastewater from Parkmerced. The impact of the Proposed Project on wastewater treatment facilities would be less than significant. No mitigation is required.

[31] Technical Memorandum, Water and Wastewater, pp. 15–19.

[32] Currently, 56.3 mg/yr of total stormwater runoff all goes into the combined sewer system. With the Proposed Project, it is anticipated that there will either be no stormwater runoff or 6–7.7 MG/yr of stormwater runoff entering the sewer system. Therefore, the anticipated decrease in stormwater runoff into the combined sewer system is 48.6–56.3 MG/yr.

Impact UT-6: Operation of the Proposed Project would not contribute considerably to cumulative impacts on wastewater conveyance and treatment. (*Less than Significant*)

Buildout of the Proposed Project and other cumulative projects in the area is estimated to increase the City's population by about 16,850 persons by 2030, as well as the amount of commercial and other non-residential space, thereby increasing the volume of wastewater to be collected and treated. Wastewater volumes would increase by 0.43 mgd, an increase of approximately 48 percent compared to existing wastewater flows from these sites. This increase in sanitary sewage due to the development of the reasonably foreseeable projects represents less than 3 percent of the average daily dry weather flow to the Oceanside Water Pollution Control Plant and roughly 1 percent of the plant's secondary treatment capacity.[33] The plant has the capacity to provide secondary treatment for up to 43 mgd. Therefore, sanitary sewage alone from the reasonably foreseeable projects would not exceed the capacity of the treatment plant or cause the plant to exceed any treatment requirements established in the National Pollutant Discharge Elimination System permit, and no significant cumulative impacts on wastewater treatment facilities would occur.

Sewer Overflows

Because both dry and wet weather flows are carried in the same pipes, increasing the volume of either flow can affect the available storage, pumping, and treatment capacity of the combined sewer system. During a large storm, both the primary and secondary treatment capacity of the treatment plant can be exceeded, resulting in releases from the combined overflow structures. Currently the Westside portion of the combined sewer system overflows approximately 6.8 times per year, on average, based on analysis in the Westside Planning Model for wastewater overflows.[34] This number of overflows complies with the City's National Pollution Discharge Elimination System permit issued by the Regional Water Quality Control Board. While the total dry weather (sanitary) flows are expected to increase due to the Proposed Project and cumulative projects, the combined sewer overflow frequency, duration, and volume are all expected to decrease from the existing 6.8 times per year on average to approximately 6.5 times per year on average with separation of wastewater and stormwater flows planned in the Parkmerced Project and the San Francisco State University Master Plan.[35]

Therefore, the cumulative projects would have less-than-significant impacts on wastewater conveyance and treatment, and no mitigation is required.

[33] Technical Memorandum, Water and Wastewater, p. 15.
[34] Technical Memorandum, Water and Wastewater, pp. 15–16.
[35] Hydroconsult Engineers, Inc., *Technical Memorandum, 19th Avenue Corridor Study Area – Cumulative Utilities Analysis*, January 14, 2010, Table 4.2.

Solid Waste

Impact UT-7: The Proposed Project would be served by a landfill with sufficient capacity to accommodate the Proposed Project's solid waste disposal needs. *(Less than Significant)* (Criteria K.f, K.g)

According to the California Integrated Waste Management Board, 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.[36] In 2008, the City produced a total of approximately 594,732 tons of solid waste.[37] At the current population and employment level, Parkmerced generates approximately 1,430 tons of solid waste per year. At project buildout, the Project Site would generate approximately 4,835 tons of solid waste per year. This would be slightly less than 1 percent of the total quantity of solid waste generated by the City as a whole.

The City has implemented a number of aggressive strategies to divert additional solid waste and achieve Citywide diversion goals. As stated above, 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 Board of Supervisors approved an ordinance that requires recycling and composting by residential and commercial uses. All residents and businesses of Parkmerced would be required to comply with the City's mandatory recycling and composting ordinance. The Project Sponsor would also provide recycling facilities for residents and tenants of commercial and retail space, including recycling containers in common areas. Therefore, the Proposed Project would comply with local solid waste ordinance, would exceed state standards for reducing solid waste, and would not exceed any federal solid waste requirements.

[36] 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, as cited in San Francisco Redevelopment Agency and City and County of San Francisco Planning Department, Draft Environmental Impact Report, Candlestick Point-Hunters Point Shipyard Phase II, November 12, 2009.

[37] California Integrated Waste Management Board, website: http://www.ciwmb.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=438&JUR=San+Francisco. Accessed November 23, 2009.

Construction on the Project Site would generate solid waste both from demolition and new building construction. The City's Construction and Demolition Debris Recovery Ordinance requires preparation of a waste diversion plan demonstrating that at least 65 percent of construction and demolition debris would be diverted from the landfill. Compliance with this ordinance would ensure that the Proposed Project would have a less-than-significant impact on landfill capacity.

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 landfill used by the City, lengthening the time horizon before the remaining disposal capacity is filled.

The increased residential population and commercial activity resulting from implementation of the Proposed Project would incrementally increase total waste generated in the City. The increasing Citywide rate of diversion through recycling, composting, and other methods would result in a decreasing amount of the City's total waste sent to the landfill. Given the City's record of reducing its municipal waste sent to the landfill, and given the long-term capacity available at the Altamont Landfill beyond 2030, as described on pp. V.K.10–V.K.11, the Proposed Project would not result in the landfill exceeding its permitted capacity, and would result in a less-than-significant impact. No mitigation measures are required.

Impact UT-8: Construction of the Proposed Project would not contribute considerably to cumulative impacts on solid waste disposal facilities. (*Less than Significant*)

Cumulatively, buildout of the Proposed Project, in combination with the other cumulative projects would contribute to impacts on solid waste disposal facilities

Buildout of the Proposed Project and the other cumulative projects by 2030 is estimated to increase the City's population by about 16,850 persons and the amount of commercial and other non-residential space. The Parkmerced Project would be one of the largest generators of solid waste among the cumulative projects in the vicinity, given the large number of residential units planned. However, Parkmerced's contribution would be less than 1 percent of the total quantity of solid waste generated by the City as a whole. The other cumulative projects' contribution would be substantially less. Therefore, the projects' contribution to cumulative impacts on solid waste would not be considerable. No mitigation is required.

L. PUBLIC SERVICES

This section of the EIR discusses police protection, fire protection, and schools. The Setting discussion describes the existing baseline conditions for police protection, fire protection, and public school facilities serving the Project Site. The Impacts discussion identifies the applicable significance criteria and then addresses the changes in demand for these services and facilities that would occur if the Proposed Project was implemented. The Impacts section also considers the contribution of the Proposed Project and other reasonably foreseeable development projects in the vicinity to cumulative environmental impacts related to police protection services, fire protection services, and public school facilities.

POLICE

SETTING

The San Francisco Police Department (SFPD), headquartered at 850 Bryant Street, provides public safety services in the City and County of San Francisco, including the Project Site. The SFPD consists of three Bureaus (Operations, Administrative Services, and Chief of Staff) and 10 Districts located throughout the City. The SFPD employs approximately 2,300 sworn officers. Police services are made up of four basic activities: responding to citizens' requests for service; carrying out activities to promote order and detect or deter criminal behavior; conducting administrative tasks; and engaging in community policing. Community policing is intended to prevent and control crime, violence, and disorder through the development of relationships between the police and community residents, merchants, and other stakeholders.

Taraval Police District

The Project Site is located within the SFPD's Taraval Police District. The district is bounded on the north by Lincoln Way (the southern boundary of Golden Gate Park); on the east by 7th Avenue, Laguna Honda Boulevard, Portola Drive, Miraloma Drive, Yerba Buena Avenue, Faxon Avenue, Ocean Avenue, and San Jose Avenue/Interstate-280; on the south by the San Mateo County line; and on the west by the Pacific Ocean. Based on Census 2000 data, the Taraval Police District includes a population of about 147,810 people (about 19 percent of the City total) and covers about 11 square miles (about 24 percent of the City's total land area).[1]

The Taraval Police District is the largest of the City's 10 police districts. The area is mostly residential and includes the Inner Parkside, Parkside, Outer Parkside, Forest Hill, West Portal,

[1] Public Safety Strategies Group, *San Francisco Police Department District Station Boundaries Analysis–Final Report*, May 13, 2008, p. 28. Available online at: http://www.sfgov.org/site/uploadedfiles/controller/reports/SFPD_DSBAfinal_trnsmtl.pdf.

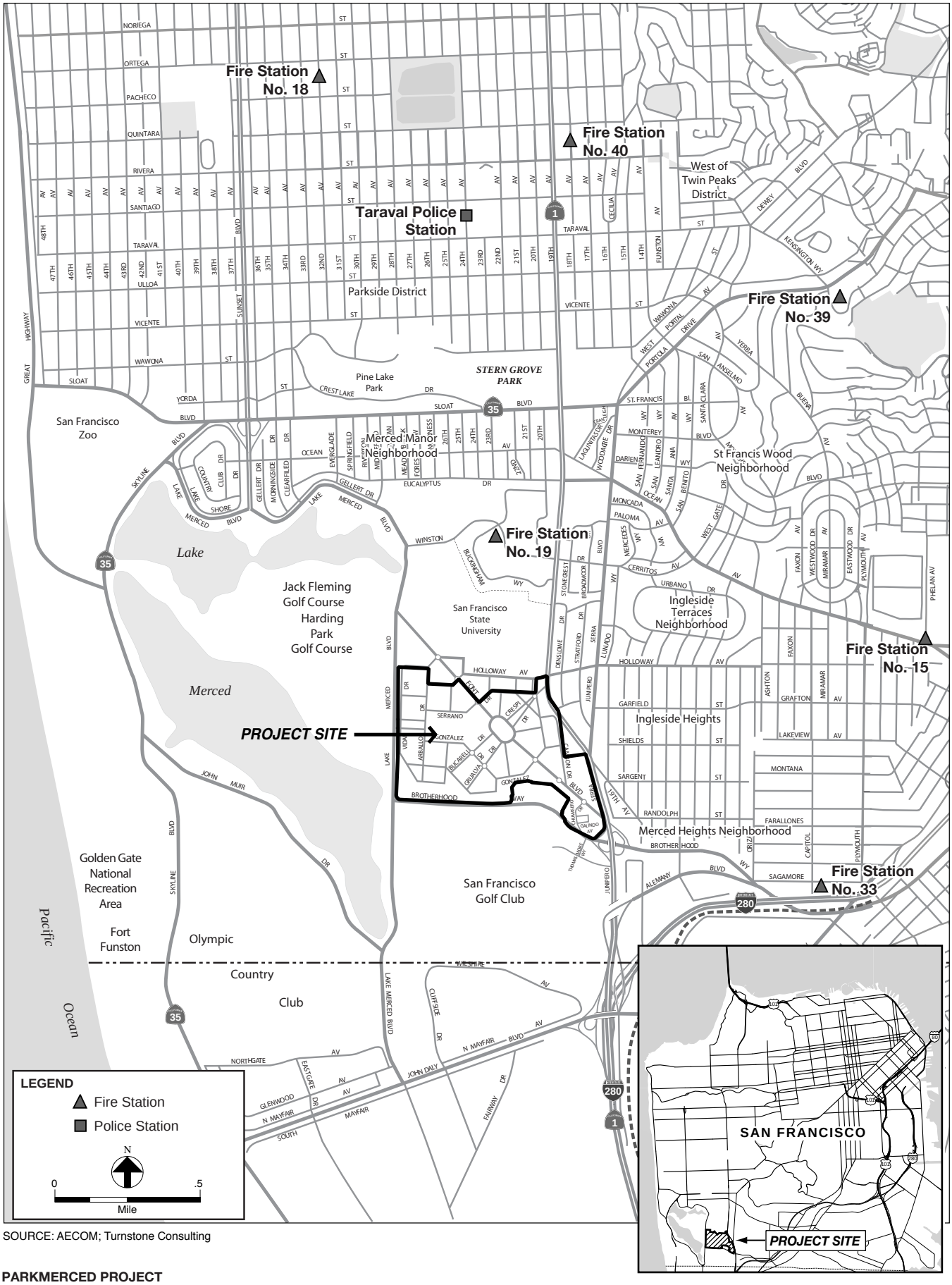
Lakeshore, Inner Sunset, Sunset, Outer Sunset, Balboa Terrace, St. Francis Wood, Monterey Heights, Ingleside Terrace, Ocean Beach, Great Highway, Lincoln Way, Merced Manor, Merced Heights, Stonestown, Pine Lake Park, Ocean View, Parkmerced, and San Francisco State University neighborhoods. Prominent commercial areas include the Irving Street, Noriega Street, Ocean Avenue, Taraval Street, and West Portal corridors, as well as the Lakeshore Plaza and Stonestown Galleria shopping centers. The district also contains about 45 public and private schools, San Francisco State University, and other public and private community facilities such as religious institutions, parks, recreation centers, libraries, and health clinics.

The district's station, the Taraval Police Station, is located at 2345 24th Avenue between Santiago and Taraval Streets (about 1.8 miles north of the Project Site). (See Figure V.L.1: Southwest San Francisco Fire and Police Stations, for the SFPD station locations.) The Taraval Police District is divided into six car patrol sectors.[2] The three northern sectors (3I1, 3I2, and 3I3) are generally divided north-south by Sunset Boulevard, 19th Avenue, and 7th Avenue. The sector that covers the Project Site (Sector 3I5) is located south of Sloat Boulevard, west of Junipero Serra Boulevard, and north of the San Mateo County line. The two remaining sectors (Sectors 3I4 and 3I6) are east of Junipero Serra Boulevard, with one extending north from Holloway Avenue to Taraval Street and the other extending south from Holloway Avenue to the San Mateo County line. There are also eight foot patrol corridors in this district (Irving Street, Judah Street, Judah Street/La Playa, Portola Drive, West Portal, Taraval Street, Ocean Avenue, and Randolph/Broad Street).[3]

Staffing

The SFPD does not have an adopted standard for the ratio of officers to population or developed acreage and bases its staffing levels on the number of service calls and crime incidents.[4] In 2007, the Police Department employed approximately 2,650 people, and approximately 2,370 of these employees were uniformed officers.[5] Authorized staffing at each district station includes 1 captain, 4 lieutenants, and 16 sergeants, as well as members of the Patrol Division, which, together with the Traffic Division, make up the Field Operations Bureau. The Patrol Division, supported by Field Operations Bureau staff, is responsible for community policing throughout San Francisco by car and on foot. The number of patrol officers is based on the population and crime statistics reported within the district. The SFPD has over 65 beat patrol geographical areas.

[2] The 11.2-square-mile district is divided into car patrol sectors 3I1, 3I2, 3I4, 3I5, and 3I6.
[3] Public Safety Strategies Group, *Foot Patrol Evaluation Report*, April 2008, Map 18, p. 90.
[4] City and County of San Francisco, San Francisco City Charter Section 4.127 states that the City is to maintain a staffing level at a minimum of 1, 971 sworn officers.
[5] The Police Department had 2,449 budgeted positions for uniformed officers, of which 2,374 were filled, which represents approximately 97 percent of budgeted positions.



SOURCE: AECOM; Turnstone Consulting

PARKMERCED PROJECT

FIGURE V.L.1: SOUTHWEST SAN FRANCISCO FIRE AND POLICE STATIONS

Taraval Station personnel include district command staff, administrative officers, and patrol officers. In total, there are 120 sworn officers, up from the 94 sworn officers identified in 2007.[6] Officers are assigned to one of the six patrol sectors in the Taraval Police District. The number of officers on patrol varies by shift, and the shifts are staggered throughout the day. The SFPD has increasingly focused its efforts on community policing strategies to improve public safety and empower residents to collaborate with police to improve neighborhoods. In the Taraval District, over 20 neighborhood watch programs have been implemented, with calls for service dropping by approximately 75 percent in the Judah/La Play neighborhood, for example.[7] In addition, there are eight beat areas with foot patrols[8] and special units like the Taraval Neighborhood Team, consisting of one sergeant and seven officers who work closely with community members to minimize crime and violence in the Oceanview Merced Ingleside (OMI) neighborhood. The Police Department also operates several community-center-based programs for youth.

Current Police Activity

The SFPD's *Boundaries Analysis* report stated that crime patterns in the City have not changed significantly over the five-year period between 2002 and 2007. The report also states that the northeastern portion of the City (the Northern, Central, Tenderloin, and Southern Police Districts) and certain sections in the middle of the City (the Mission Police District) continue to have the highest incidences of crime, while the outlying areas of the City continue to place the least demand on police services.

Criminal incidents recorded by the SFPD are organized according to the severity of the crime. Part I crimes include aggravated assault, arson, auto boosting, burglary, homicide, larceny, motor vehicle theft, rape, and robbery. Part II crimes range from carrying weapons to receiving stolen property. They include embezzlement, forgery, other (non-aggravated) assaults, disorderly conduct, sex offenses, and others. According to SFPD records, a total of 3,340 Part I crimes and 3,324 Part II crimes were reported in the Taraval Police District in 2007. District-specific Part I crimes accounted for approximately 8 percent of Citywide Part I crimes (43,690 incidents reported in total), and district-specific Part II crimes accounted for approximately 7 percent of Citywide Part II crimes (46,822 incidents in total).[9] In recent years the Taraval Police District responded to a number of vehicular fatalities. In 2009, Taraval officers wrote over 6,411 moving violations targeting major corridors including 19th Avenue and other parts of the district. Traffic calming plans have been implemented in conjunction with Caltrans and Muni.

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[6] Commander Kitt Crenshaw, Response to Parkmerced Request for Information, November 24, 2009 (hereinafter referred to as SFPD RFI); Public Safety Strategies Group, pp. 46, D4. A copy of the SFPD RFI is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

[7] SFPD, *San Francisco Community Policing a Report on Current Efforts*, November 2006, p. 13.

[8] Beat officers patrol the same beat on the same watch for at least a year.

[9] San Francisco Police Department, *2007 Annual Report*, p. 81.

Response Time

The type of police response varies according to the nature and urgency of the call. In San Francisco, the following four call priorities have been established:

- Priority A calls are defined as involving a "life-threatening emergency." These calls are the highest priority.
- Priority B calls are defined as involving "potential for harm to life and/or property." These calls are the second priority.
- Priority C calls are defined as involving "crime committed with no threat to life or property. Suspect left crime scene." These calls are third in priority.
- Priority I calls are "information only broadcast, e.g. public disturbance. Caller wants to remain anonymous."

According to the SFPD *2007 Annual Report*, the Taraval Police District received 4,463 Priority A calls, 10,410 Priority B calls, and 9,512 Priority C calls, for a total of 24,385 calls for service. The Taraval Police District also dealt with a total of 29,385 on-view (i.e., on-site) incidents that required an officer-initiated response.[10] In total, the Taraval Police Station handled approximately 7 percent of all calls for service in the City, with the most frequent call for service in the District being traffic stops and bus inspections.

In the SFPD's "Performance Measures" set out as part of the City's 2008–2009 budget, the department established the following target response times for 2008–2009:

- Priority A Calls – 4.4 minutes,
- Priority B Calls – 8.3 minutes, and
- Priority C Calls – 10.8 minutes.

Using 2007 data from the Computer Aided Dispatch System, the average response times for the Taraval Police District (measured from the time the call was dispatched until the unit arrived) were 3.4 minutes for Priority A calls, 11.1 minutes for Priority B calls, and 10.6 for Priority C calls. The 2007 Citywide average response times reported in the *Boundaries Analysis* report were 4.36 minutes for Priority A calls, 8.021 minutes for Priority B calls, and 11.37 for Priority C calls. While, in general, police department response times vary depending on a number of factors, including types of calls received and proximity of the nearest vehicle, response times in the vicinity of the Project Site generally meet targets.

[10] San Francisco Police Department, *2007 Annual Report*, p. 80

Facilities

The *Boundaries Analysis* report identifies improvement needs at most existing stations:

> The stations are either at capacity or too small for the number of personnel assigned, storage is lacking, locker rooms are inadequate, and technology is outdated and/or non-existent. … [Most of the] stations, despite being fairly new or updated, do not fully meet the needs of the SFPD. Station facilities are small, locker rooms do not provide adequate space, juvenile facilities are lacking, interview and report-writing rooms compromise productivity, and facilities present safety and security concerns.[11]

The report identified particularly pressing shortcomings at two stations (Central and Southern), and recommended that those two stations be replaced. With regard to the Taraval Police Station specifically, the *Boundaries Analysis* report notes:

> Taraval Police Station is a newly remodeled station; however, the facility has little room for growth and staffing increases and lacks a secure lot area for police vehicles.[12]

The report, however, does not call for replacement of the Taraval Police Station, which was remodeled in 1996.

Regulatory Framework

There are no federal, state, or local police services regulations applicable to the Proposed Project.

IMPACTS

Significance Criteria

The Planning Department's Initial Study Checklist Form provides a framework of topics to be considered in evaluating a project's impacts under the California Environmental Quality Act (CEQA). In accordance with the *CEQA Guidelines*, implementation of a project could have a potentially significant impact related to police protection services if the project were to:

- Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services.

[11] Public Safety Strategies Group, pp. 20 and 27.
[12] Public Safety Strategies Group, Table 2, p. 20

Methodology

Impacts on police protection services are considered significant if an increase in population or development levels as a result of the Proposed Project would result in inadequate staffing levels, increased response times, and/or increased demand for services that would require construction or expansion of new or altered facilities that themselves could have an adverse physical effect on the environment. Thus, a significant impact would occur if the existing Taraval Police Station could not accommodate additional offices required to meet Proposed Project demand, and a new facility would have to be constructed or an existing facility in the southwest quadrant of the City expanded. The information used to assess the impacts on police protection services was obtained through a request for information to the SFPD and a review of the Public Safety Strategies Group's assessment of facilities needs. Additionally, the Proposed Project's potential contribution to cumulative impacts is evaluated in the context of existing, proposed, and reasonably foreseeable future development expected in the vicinity of the Project Site.

Impact Evaluation

Impact PS-1: The Proposed Project would result in a need for new or physically altered facilities in order to maintain acceptable service ratios, response times, or other performance objectives for police protection. (*Less than Significant*)

The Proposed Project would be infill development in an area of the District that is already served by the SFPD. Buildout of the Proposed Project would not increase police response times by placing new development in areas that are inaccessible or distant from an existing police station or existing neighborhood patrols.

With construction of the approximately 5,679 net new residential units on the Project Site, residents at Parkmerced would increase from about 7,340 (in existing units) to about 20,290 residents at full buildout. An increase of about 12,950 residents on the Project Site would constitute an approximate tripling of the existing Parkmerced population. The new retail uses, leasing/administration office uses, educational facilities, building and grounds maintenance-related uses, and fitness facility uses on the Project Site are expected to generate approximately 1,595 net new employees. The increased number of residents and employees at the Project Site would result in an increase in the demand on services from the Taraval Police District.

Project demand for police protection service would be expected to increase incrementally over the 20-year construction period as the phases of the Proposed Project are completed, constructed, and occupied (see Chapter III, Project Description, pp. III.54-III.65, for an overview of the Proposed Project's phases). As shown in Table V.L.1, a Citywide ratio of 1 officer per 600 people was derived based on existing staff levels and the City's estimated resident and employee population in 2010.

Table V.L.1: Citywide Number of Police Officers and Estimated Project Site Demand

Citywide (2010)	Population	Police Officers
Residents	810,000	
Employees	568,730	
Total	1,378,730	2,300
Ratio (officer to population)	1:600	
Proposed Project (2030)		
Residents	20,290	
Employees	1,830	
Total	22,120	36
Ratio (officer to population)	1:600	

Source: The population and employment data reported for San Francisco is 2010 data from ABAG *Projections 2009*, pp. 92-93; population and employment projections are from Section V.C, Population and Housing.

When applied to the total projected resident and employee population on the Project Site at build-out, an increase of 36 police personnel would be needed to provide a comparable level of service in the Taraval District. The number of police staff serving administrative roles generally does not increase proportionately to an increase in the field staff.[13]

As stated on p. V.L.2, the SFPD does not have an adopted standard for the ratio of officers to population or developed acreage and bases its staffing levels on the number of service calls and crime incidents by sector, not station or district needs. The Project Site is located in Sector 3I5 where, on average, there are about 75 to 100 calls for police response per week.[14] While it is unlikely that 36 new officers would be needed at the outset of the development of the Proposed Project, as development would occur over a 20-year time period, some redistribution of the police presence in the southern portion of the District would be warranted by the Proposed Project development.

As discussed on pp. V.L.6–V.L.7, the need for additional staff would not, in itself, constitute a significant environmental impact related to police protection service unless it would "[r]esult in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts." Thus, while staffing increases, in and of themselves, would not create a significant environmental impact, the construction of new facilities to accommodate the additional 36 police officers could create significant environmental impacts. The addition of 36 SFPD personnel would require a station from which to operate. Even if the existing Taraval

[13] Future staffing needs at the Taraval Police Station may also be affected by another factor independent of the Proposed Project: the potential consolidation of police districts and the reorganization of police district boundaries as recommended by the *Boundaries Analysis* report.
[14] SFPD RFI.

Station were to be reconfigured and if the existing civilian personnel who occupy the station were to be moved to another facility, the existing space would not accommodate 36 new police officers. The exact amount of space that would be needed has not yet been determined.

Given the fact that the Taraval Police District is the largest police district, it reports the highest response times for calls for service in the City, and during an average week responds to approximately 75 to 100 calls from Sector 3I5, which includes the Project Site.[15] Development of the Proposed Project would be expected to increase the SFPD's response time for calls for service in Sector 3I5, because the SFPD anticipates an increase in response time throughout the District and even more demand on the Taraval Police District. The *Boundaries Analysis* report did not identify a future need for a new or expanded police facility in the Taraval Police District; however, the District Commander has identified that a substation on the Project Site is needed to adequately serve future development on the Project Site and the rest of the district.[16] The SFPD anticipates the need for an approximately 1,000-gsf substation near the transit plaza within the neighborhood core, which would include space for operations, an administration area, and an area for a holding cell. The Proposed Project includes space for a substation within one of the new buildings that would be constructed in the neighborhood core. The exact location and timing of construction would be negotiated with the SFPD as part of a provision identified in the proposed Development Agreement. The physical impacts of construction and operation from development within the neighborhood core are addressed in Sections V.A, Land Use; V.B, Aesthetics; V.D, Cultural Resources; and V.E, Transportation and Circulation. Therefore, the Proposed Project would not result in a significant impact on police protection. No mitigation is required.

Impact PS-2: The Proposed Project's contribution to cumulative projects would result in a need for new or physically altered facilities in order to maintain acceptable service ratios, response times, or other performance objectives for police protection. (*Less than Significant*)

The anticipated cumulative development that would likely be served by the Taraval Police Station (or a consolidated Taraval-Ingleside "Southwest" district as recommended in the *Boundaries Analysis* report[17]) is made up of mixed-use projects at 77-111 Cambon Drive and at 1150 Ocean Avenue (in the *Balboa Park Station Area Plan*); residential developments at 800 Brotherhood Way, 445 Wawona Street (Arden Wood), and 700 Font Boulevard; and the *San Francisco State University Master Plan*. Cumulatively, buildout of the Proposed Project in combination with these other residential and mixed-use developments proposed on nearby sites ("cumulative

[15] SFPD RFI.
[16] Verbal communications from by Commander Kitt Crenshaw on March 3, 2010, followed up with email communication on April 8, 2010. A San Francisco Police Department substation of approximately 1,000 gsf would be needed to adequately serve future development on the Project Site and the rest of the district.
[17] *Boundaries Analysis*, p. 9

projects") is estimated to increase the City's population by about 16,850 persons by 2030.[18] This increase does not exceed the projected population increase anticipated by 2025 for southwest San Francisco in the *Boundaries Analysis* report.[19]

Increased demand for police protection services in the Taraval District is expected to occur as the residences and commercial space in the Proposed Project and other reasonably foreseeable development projects are built and occupied over the 20-year analysis period. Although cumulative development may result in a demand for additional SFPD staff, that alone would not result in a significant physical environmental effect. However, as described above, the SFPD has identified the potential need for a new substation of approximately 1,000 gsf within the neighborhood core of the Parkmerced Site in order to serve anticipated cumulative growth in population in southwest San Francisco.

As mentioned in Impact PS-1, the Proposed Project includes space for a substation within one of the new buildings that would be constructed in the neighborhood core. The exact location and timing of construction would be negotiated with the SFPD as part of a provision identified in the proposed Development Agreement. Therefore, the Proposed Project's contribution to cumulative project impacts on police services would not be significant. No mitigation is required.

FIRE AND EMERGENCY MEDICAL SERVICES

SETTING

The San Francisco Fire Department (SFFD) is responsible for protecting life and property throughout San Francisco from fires, natural disasters, and hazardous materials incidents.[20] The SFFD also provides unified emergency medical services in the City, including basic life support and advanced life support services. In addition, several privately operated ambulance companies are authorized to provide basic and advanced life support services. Water supply for fire suppression in San Francisco is provided by an auxiliary water supply system (AWSS). Water for the AWSS is distributed through a network of pipes drawing water from a collection of reservoirs,[21] pumping stations, and independent cisterns throughout the City. This system provides higher pressure than the domestic water system, allowing firefighters to direct water greater distances.

[18] The population data and projections are based on land use information provided by the San Francisco Planning Department as part of the 19th Avenue Corridor Study and are included in Section V.C, Population and Housing, of this EIR.
[19] *Boundaries Analysis*, p. 31.
[20] The mission of the Fire Department is stated on the City and County of San Francisco Fire Department website at: www.sfgov.org/site/sffd_index.asp, accessed December 4, 2009. The mission statement also includes fire prevention education and goals for the work environment.
[21] The reservoir just below the summit of Twin Peaks is one of the primary water sources for the gravity-driven AWSS.

The SFFD has approximately 1,700 firefighting and emergency personnel and consists of three divisions, made up of 10 battalions and 43 active stations located strategically throughout the City. Staffing at each station is determined based on the types of firefighting apparatuses each station maintains. Engines are staffed with one officer and three firefighters, many of whom are trained emergency medical technicians (EMTs).[22] On an Advanced Life Support (ALS) engine, one of the firefighters is a firefighter/paramedic, with a significantly higher level of medical training than an EMT. Trucks[23] are staffed with one officer and four firefighters. Ambulances are staffed with an EMT and a paramedic, who provides pre-hospital advanced medical and trauma care. The number of engines, trucks, and ambulances that are on duty at any one time is based on staffing availability.

Fire stations are strategically located to allow personnel to reach emergencies in the surrounding area quickly. In San Francisco, response times are calculated from the time the dispatch is received and acknowledged at the station to the time the responding unit informs dispatch that it is on scene. The SFFD target response time goals are 8 minutes for Code 1 calls (non-emergency), 20 minutes for Code 2 calls (non-life-threatening fire and medical emergencies), and 4 minutes, 30 seconds for Code 3 calls (life-threatening fire and medical emergencies),, the highest response priority. When responding to Code 3 calls, responding vehicles use flashing lights and sirens and cross intersections against control lights. The SFFD is currently in the 90th percentile for attainment of all the department's response time goals.[24]

The Project Site is located within the southwestern part of San Francisco. The first responder to the Project Site is Station 19, located at 390 Buckingham Way (about 0.7 mile north of the Project Site).[25] This station is equipped with an ALS engine (Engine Company No. 19) and a fire truck (Truck Company No. 19). Station 19 response times for fire emergency and medical service calls within its first responder area average 4 minutes, 32 seconds and 4 minutes, 34 seconds, respectively.[26] As stated above, the department's response time goal is 4 minutes, 30, seconds, which is currently achieved at the 90th percentile. On average, Station 19 responds to

[22] Engines carry water and hose to extinguish fires, as well as medical equipment and defibrillators. They are the first responders to Code 3 medical calls. An engine can be an advanced life support or basic life support engine (ALS or BLS) depending on the availability of a paramedic. If a firefighter/paramedic is not available, the position is taken by a firefighter EMT.
[23] Trucks carry ladders and other equipment and are used in fire suppression to provide ladder access, rescue, and ventilation.
[24] Office of the Controller, City and County of San Francisco, *A Review of the San Francisco Fire-EMS System*, April 2004, Appendix B. Available online at: http://www.sfgov.org/site/controller_page.asp?id =24430.
[25] Ibid, Appendix C, p. 3.
[26] San Francisco Fire Department, Gary Massetani, Deputy Chief of Administration, Follow-up Response to *Response to Parkmerced Request for Information (SFFD RFI)*, April 6, 2010.

approximately 2,000 calls per year, or about 160 fire suppression and emergency medical service responses per month.[27]

Other fire stations in the vicinity of the Project Site include Station 18, at 1933 32nd Avenue (about 2.4 miles northwest); Station 40, at 2155 18th Avenue (about 2 miles north); Station 39, at 1091 Portola Drive (about 1.9 miles northeast); Station 15, at 1000 Ocean Avenue (about 1.4 miles east); and Station 33, at 8 Capital Avenue (about 1.15 miles southeast).[28] Three of the stations have ALS engine companies; Stations 15 and 18 also have a medic unit and a truck company.

Regulatory Framework

Federal

There are no federal fire protection regulations applicable to the Proposed Project.

State

California Fire Code

State fire regulations are set forth in Sections 13000 *et seq*. of the California Health and Safety Code, which include regulations concerning building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices (such as extinguishers and smoke alarms, high-rise building and child care facility standards), and fire suppression training.

Local

San Francisco Fire Code

The San Francisco Fire Code incorporates by reference the California Fire Code, with certain local amendments. The San Francisco Fire Code was revised in 2007 to regulate and govern the safeguarding of life and property from fire and explosion hazards arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises; to provide for the issuance of permits, inspections, and other SFFD services; and to assess and collect fees for those permits, inspections, and services. The SFFD reviews building plans to ensure that fire and life safety are

[27] Ibid.

[28] Distances calculated from each fire station to Juan Bautista Circle using Google Earth.

provided and maintained in the buildings that fall under its jurisdiction. SFFD plan review applies to all of the following occupancy types:

- Assembly occupancies (including restaurants and other gathering places for 50 or more occupants)
- Educational occupancies (including commercial day care facilities)
- Hazardous occupancies (including repair garages, body shops, fuel storage, and emergency generator installation)
- Storage occupancies where potential exists for high-piled storage as defined by Fire Code
- Institutional occupancies
- High-rise buildings of all occupancies
- Residential occupancies, such as hotels, motels, lodging houses, residential care facilities, apartment houses, small- and large-family day care homes, and R-1 artisan buildings (excluding minor residential repairs such as kitchen and bath remodeling and dry rot repair)
- All fire alarm and fire suppression systems

In coordination with the San Francisco Department of Building Inspection (DBI), the SFFD conducts plan checks to ensure that all structures, occupancies, and systems listed above are designed in accordance with the San Francisco Building Code.

Section 511 (Local Fire Safety Feature Requirements) of the San Francisco Fire Code requires that buildings 200 feet or more in height must provide at least one elevator approved by the Fire Department for firefighter use under fire conditions. The section also requires that buildings with floors used for human occupancy located 75 feet above the lowest level of Fire Department vehicle access (usually 75 feet above the street) have an air replenishment system so that firefighters can refill air bottles for their self-contained breathing apparatus. The system must be tested and maintained pursuant to the Fire Department Administration Bulletin.

IMPACTS

Significance Criteria

The Planning Department's Initial Study Checklist Form provides a framework of topics to be considered in evaluating a project's impacts under the CEQA. In accordance with the *CEQA Guidelines*, implementation of a project could have a potentially significant impact related to fire protection if the project were to:

- Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services.

Methodology

Impacts on fire protection and emergency medical services are considered significant if an increase in population or development levels as a result of the Proposed Project would result in inadequate staffing levels, increased response times, and/or increased demand for services requiring the construction or expansion of new or altered facilities that could have an adverse physical effect on the environment. Thus, a significant impact would occur if the existing Fire Station 19 could not accommodate the additional SFFD personnel needed to meet Proposed Project demand, and a new facility would have to be constructed or an existing facility in the southwest quadrant of the City expanded. Additionally, the Proposed Project's potential contribution to cumulative impacts is evaluated in the context of existing, proposed, and reasonably foreseeable future development expected in the vicinity of the Project Site.

Impact Evaluation

Impact PS-3: The Proposed Project would result in a need for new or physically altered facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency medical services. (*Less than Significant*)

The Proposed Project would be infill development in an area already served by the SFFD. Buildout of the Proposed Project would not increase fire and emergency medical response times by placing new development in an area that is inaccessible or out of the response area of existing fire stations. However, the Proposed Project would intensify the existing uses on the Project Site, construct new mid- to high-rise buildings, and the area's transportation infrastructure would be reorganized. With construction of the approximately 5,679 net new residential units on the Project Site, the number of residents at Parkmerced would increase from about 7,340 (in existing units) to about 20,290 residents at full buildout (in 2030). An increase of about 12,950 residents on the Project Site would constitute an approximate tripling of the existing Parkmerced population. The new retail uses, leasing/administration office uses, educational facilities, building and grounds maintenance-related uses, and fitness facility uses on the Project Site are expected to generate approximately 1,595 net new employees. The increased number of residents and employees at the Project Site, combined with an increase in the number of buildings on the Project Site, would result in an increase in the demand for fire protection and emergency medical service. Buildout of the Proposed Project would be expected to increase the number of calls for fire suppression and emergency medical service by approximately 1,800 to 3,800 a year (or 320 per month). The increase in the call volume would be expected to result in more out-of-station

operation for ALS Engine 19, requiring the station's second unit, Truck 19, to become the first responder, and could thereby increase response times.[29]

The existing 11 on-site towers (130 feet tall, 13 stories) would remain, and 11 new 11- to 14-story towers (115 to 145 feet tall) would be constructed in the west-central portion of the Project Site, near the existing tower buildings, and in the southeastern portion of the Project Site. Numerous shorter buildings with occupied floors above 75 feet would also be allowed under the proposed SUD height limits. The existing apparatus at Station No 19 includes Truck No. 19, which has a 100-foot aerial ladder. New development within the Project Site would be subject to current state and local regulations governing fire and life safety in high-rise construction. The SFFD would review building plans to ensure that adequate fire and life safety measures are provided, including review of emergency access and egress; sprinkler systems; fire-rated design, construction, and materials; restrictions on occupant loads; emergency lighting; smoke alarms; mechanical smoke control and emergency notification systems; hydrants; and roadway access for fire equipment.

Project demand for fire protection and emergency medical service is expected to increase incrementally over the 20-year construction period as the phases of the Proposed Project are completed. To maintain acceptable response times, the SFFD may have to hire additional personnel, and/or redeploy existing personnel, and acquire and/or redeploy equipment to serve the Project Site. As discussed above on pp. V.L.6-V.L.7, the need for additional staff and/or equipment would not, in itself, constitute a significant environmental impact related to fire protection service unless it would "[r]esult in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts."

As indicated above, development of the Proposed Project would be expected to result in an increase in the SFFD's response to calls for fire and emergency medical service because ALS Engine 19 would likely be out of the station more often, requiring Truck 19 to be the primary responder for more calls.[30] This would result in an average increase to response times of about one minute, and the need for additional staffing and equipment, in particular ambulances, as emergency medical service calls constitute a growing percentage of calls.[31]

The SFFD Deputy Chief of Administration has identified the need for a substation, with a potential need for a new Fire Station to adequately serve future development on the Project Site and in nearby neighborhoods.[32] The Proposed Project would include an approximately 1,000-

[29] San Francisco Fire Department, Gary Massetani, Deputy Chief of Administration, Follow-up Response to *Response to Parkmerced Request for Information (SFFD RFI)*, April 6, 2010.
[30] Ibid.
[31] Ibid.
[32] Verbal communication from Deputy Chief Gary Massetani on April 6, 2010.

gross-square-foot (gsf) substation near the transit plaza, within one of the new buildings that would be constructed in the neighborhood core of the Project Site.[33] If the need to construct a new Fire Station is ultimately determined, its future site would likely be located in the southern portion of the Project Site.[34] The exact location and timing of construction for the substation and, if needed, the Fire Station would be negotiated with the SFFD as part of a provision identified in the proposed Development Agreement. The physical impacts of construction and operation from development within the neighborhood core are addressed in Sections V.A, Land Use; V.B, Aesthetics; V.D, Cultural Resources; and V.E, Transportation and Circulation. Although buildout of the Proposed Project may result in a demand for additional SFFD staff and increased response times, that alone would not result in a significant physical environmental effect. Therefore, with the provision of a substation and/or fire station on the Project Site, the Proposed Project would not result in a significant impact on fire protection and emergency medical services, and no mitigation is required.

Impact PS-4: The Proposed Project's contribution to cumulative projects would result in a need for new or physically altered facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency medical services. (*Less than Significant*)

Buildout of the Proposed Project in combination with the cumulative projects is estimated to increase the City's population by about 16,850 persons by 2030.[35] These projects would include about 7,390 residential units, 460,000 gsf of retail uses, 834,000 gsf of institutional/educational uses, 80,000 gsf of office uses, 214,000 gsf of community facilities, and an 8-screen movie theater.[36]

Cumulative demand for fire protection and emergency medical service is expected to increase as the residences and commercial space in the Proposed Project and other reasonably foreseeable development projects are built and occupied over the 20-year analysis period. Although cumulative development may result in a demand for additional SFFD staff or increased response times, that alone would not result in a significant physical environmental effect. Based on an analysis provided by the SFFD, the cumulative projects, including the Proposed Project, would increase response times for the southwest area of San Francisco by an average of 30 seconds.

[33] Ibid.
[34] Ibid.
[35] The population data and projections are based on land use information provided by the San Francisco Planning Department as part of the *19th Avenue Corridor Study* and are included in Section V.C, Population and Housing, of this EIR.
[36] See Section V.C, Population and Housing, of this EIR.

This would be due primarily to the 2,100 additional calls expected at Stations 19, 15, 33, and 39, from 6,700 calls per year under existing conditions to 8,800 under 2030 cumulative conditions.[37]

As identified above under Impact PS-3, the Proposed Project would include an approximately 1,000-gsf substation near the transit plaza, with a potential to construct a new Fire Station in the southern portion of the Project Site.[38] The exact location and timing of construction for the substation and, if needed, the Fire Station would be negotiated with the SFFD as part of a provision identified in the proposed Development Agreement. Therefore, the Proposed Project's contribution to cumulative projects' impacts on fire protection and emergency medical services would not result in a significant impact. No mitigation is required.

SCHOOLS

SETTING

Existing Citywide Conditions

San Francisco Unified School District

Enrollment

Public primary and secondary education in the City and County of San Francisco is provided by the San Francisco Unified School District (SFUSD). As identified in the *SFUSD Capital Plan FY 2010–2019*,[39] the SFUSD has 107 K-12 school sites with 64 elementary schools (grades K-5), 11 alternatively configured schools[40] (schools not configured grades K-5, 6-8, or 9-12), 14 middle schools[41] (grades 6-8), and 18 high schools[42] (grades 9-12). There are also 34 pre-schools, 3 charter schools,[43] and 2 San Francisco County Office of Education schools that have separate enrollment processes. Total district enrollment for the 2008–2009 academic year was 56,116

[37] San Francisco Fire Department, Gary Massetani, Deputy Chief of Administration, Follow-up Response to *Response to Parkmerced Request for Information (SFFD RFI)*, April 6, 2010.
[38] Ibid.
[39] *San Francisco Unified School District Capital Plan, FY 2010–2019*. Available online at: http://portal.sfusd.edu/data/facilities/FINAL%20APPROVED%20CAPITAL%20PLAN%202010-2019%20Oct%2027%202009.pdf, accessed December 8, 2009.
[40] Includes the Paul Revere Annex.
[41] Excludes Luther Burbank, current site of June Jordan High School.
[42] Includes two programs co-located at 555 Portola Drive (SOTA & Academy of Arts & Sciences), and two programs co-located at 3750 18th St. (Mission High School and San Francisco International High School).
[43] Includes Creative Arts, Edison, and two programs co-located at Benjamin Franklin/Burl Toler Campus and excludes City Arts & Technology (former Luther Burbank Campus), Leadership Charter High School (co-located with James Denman Middle School), and Metropolitan Arts & Technology (co-located at Philip/Sala Burton High School).

students.[44] Religious and secular private schools have long been popular in the City. According to 2000 Census data, approximately 26 percent of school-aged children in the City attend private school, compared to a California average of about 10 percent. As of 2000, this translated to approximately 21,000 private school students. The most recent data show that at the state level private school enrollment has declined from approximately 10 percent of school-aged children in 2000 to a little more than 8 percent in 2007.[45] In 2007 in San Francisco, approximately 25,000 school-age students, or 30 percent, were enrolled in approximately 107 private schools.[46] Thus, private schools continue to serve a significant number of San Francisco families with school-aged children.

The SFUSD is currently not a growth district, and even when the rise in public school enrollment applications for the current academic year (2009–2010) is taken into consideration, the district is likely to have excess capacity at some of its school facilities. In the last decade, overall enrollment declined steadily, with many schools having had significant drops in enrollment while very few schools experienced increased enrollment. Total district enrollment in 1998–1999 was 63,925, and in 2008–2009 it was 56,116, a decline of about 12.2 percent. Over the past 10 years, SFUSD has lost an average of nearly 780 students annually. In response to enrollment declines, several schools, including Golden Gate Elementary,[47] William De Avila Elementary,[48] and Franklin Middle School, were closed or consolidated by the School Board in 2006. However, the new and growing communities in Mission Bay, Hunters Point, and Treasure Island may trigger the need to construct new school infrastructure.

According to the *SFUSD Capital Plan FY 2010–2019*, the decline that has been experienced over the last 10 years slowed in the 2008–2009 school year. The *SFUSD Capital Plan FY 2010-2019* projections indicate that:

> elementary enrollment will continue to grow due to the large birth cohorts[49] of the early 2000s. The number of elementary school students will eventually rise from 25,000 students in 2008 to 27,600 in 2013, representing an 11 percent increase in just five years. After a slight decline in 2009 and 2010, middle school enrollment will increase again, due to the large birth cohorts of the early 2000s. However, in 2013 it will still stand below current enrollment (at 11,640 compared with 11,816 in 2008). High school enrollment will experience a

[44] San Francisco Unified School District, *School Site List & Summary, CBEDS Information Day – October 1, 2008*, p.1. This figure includes the 55,272 students enrolled in SFUSD schools plus the 844 students enrolled in the San Francisco County Office of Education school sites.
[45] California Department of Education, *Enrollment and Staff in California Private Schools*, August 2007, p. 10. Available online at: http://www.cde.ca.gov/ds/si/ps/index.asp. Accessed November 20, 2009.
[46] Ibid, pp. 3, 14, and 21.
[47] Golden Gate Elementary school site is now occupied by Creative Arts Charter School.
[48] William De Avila Elementary has been reopened for the 2009–2010 academic year as a Mandarin Chinese Immersion program serving kindergarten and first grade students.
[49] A birth cohort is a group of people who were born in a specified calendar period.

> continuous decline over the next five years, from 19,696 students in 2008 to 18,396 in 2013, reflecting the declining birth trend of the 1990s.

Additionally, many schools in the SFUSD needed to be modernized, retrofitted, or improved in some way to serve the existing and future SFUSD students. As a result, City voters approved a $295 million bond in November 2003 to address modernization at 30 school sites, and a $450 million bond in November 2006 that included 64 projects at 59 additional school sites. Completion of this bond-funded work is expected in 2012. Future bond issues will be necessary to continue the modernization and rehabilitation efforts, such as the construction of Americans with Disabilities Act-compliant access.

The SFUSD determines capacity numbers by applying target enrollment numbers, established each year, that reflect both the academic model of the school and the historical demand patterns. These capacity numbers are used by the Educational Placement Center for enrollment purposes. The SFUSD Facilities Department also provides capacity numbers that reflect the physical space. As part of the redesign of the enrollment process (expected to go into effect for the 2011–2012 academic year), data showing capacity surplus/deficits indicate that the Lakeshore nieghborhood, including the Project Site, has a surplus of approximately 140 elementary school seats and a deficit of approximately 184 middle school seats.[50]

Student Assignment System

Since the 2002–2003 academic year, the SFUSD has operated a three-part, race-neutral, choice-based student assignment system that focuses on outreach and recruitment, program placement, and a diversity index lottery. Under this system, the most significant determinants of a student's school assignment are parental choice and school capacity. Under current practice, parents submit an application with a list of ranked school choices, and the SFUSD assigns students based on available openings, attendance areas, and the diversity index lottery. This system has been adjusted in subsequent years to address topics such as parental choice by expanding the list of potential schools from five to seven, so parents of students can now list up to seven schools to improve their chances of getting assigned to a requested school.[51] Since the SFUSD allows students to apply to any school in the City, in-demand schools receive more enrollment requests than seats available. Whenever enrollment requests are greater than the number of seats available, the SFUSD uses the diversity index lottery to determine which students get an assignment offer. The diversity index lottery results are based on a formula made up of race-neutral factors that calculates the probability that in a given grade randomly chosen students will

[50] San Francisco Unified School District, SFUSD Enrollment Process Redesign, Website: http://portal.sfusd.edu/data/epc/Comparison%20of%20Number%20of%20Students%20Living%20in%20Each%20SF%20City%20Planning%20Nhood.pdf. Accessed November 21, 2009.
[51] Applies to all SFUSD schools except Lowell Alternative High School and the School of the Arts.

be different from each other. The five race-neutral factors used are extreme poverty, socioeconomic status, student's home language, quality of student's prior school, and student's prior academic achievement. When elementary school students are assigned to a school outside of their neighborhood, the district provides them with bus transportation to the assigned school. Middle and high school students assigned to schools outside their neighborhoods rely on public or private transportation to travel to their assigned schools.

In March 2010, the SFUSD adopted a new school assignment system for assigning students to schools. The new assignment system is expected to be implemented in time for the 2011–2012 school year. In addition to the consideration currently given to whether an incoming student has other siblings in the school, the elementary school assignment system now considers the following additional deciding factors for school assignment: whether a student is in a low-scoring census tract; where the student attended elementary school; whether a student attended an SFUSD pre-school in his or her attendance area; and whether the student's elementary school attendance area lacks sufficient capacity to serve the number of students who live within it. Under the current lottery system, the diversity index does not include a factor based on the student's school attendance area. Other changes to the assignment system include the development of a feeder system from elementary school to middle school by placing students at the middle school located within the attendance area of the elementary school attended by the student. Middle school students could opt out of the initial placement without losing their spot and apply to other middle schools under an assignment system based on the factors outlined above, with the exception of the factor related to pre-school. High school students would still apply to high schools and would be subject to an assignment process based on siblings and the census tract scoring data.

Until the new assignment system can be implemented, however, it is not known how it may influence schools or students who live in the vicinity of the Project Site. Therefore, the analysis in this EIR uses the current assignment methodology and data for impact analysis.

Existing Conditions in the Vicinity of the Project Site

There are seven public high schools (Lowell Alternative, School of the Arts, Abraham Lincoln, Newcomer,[52] City Arts and Technology Charter, Leadership Charter, and Balboa), four middle schools (Aptos, A.P. Giannini, Herbert Hoover, and James Denman), and 26 elementary schools (Francis Scott Key, Sunset, Ulloa, Lawton Alternative, Robert Louis Stevenson, Dianne Feinstein, Lakeshore Alternative, Jefferson, Alice Fong Yu, West Portal, Commodore Sloat, Jose Ortega, Sheridan, Clarendon Alternative, Grattan, Rooftop Alternative, Sanchez, Alvarado, Harvey Milk Civil Rights Academy, Miraloma, Sunnyside, Glen Park, S.F. Community

[52] Newcomer is a one-year transitional educational program for newly arrived immigrant/refugee high-school-age students.

Alternative, Monroe, Longfellow, and Guadalupe) located in the southwest quadrant of the City that could serve students generated by the Parkmerced Project. The Project Site is within the school attendance districts for Abraham Lincoln High School, Aptos Middle School, and Jose Ortega Elementary School. Jose Ortega Elementary School has a current enrollment of approximately 254 students and an average classroom size of 19.5 students. Aptos Middle School has a current enrollment of approximately 988 students and an average classroom size of 29.4 students. Lincoln High School has a current enrollment of approximately 2,500 students and an average classroom size of 21.6 students.[53]

In the Lakeshore neighborhood, where Parkmerced is located, there were 372 SFUSD elementary school students and 185 SFUSD middle school students in the 2008–2009 academic year.[54] The elementary schools within this neighborhood have a capacity of 511 total students with a surplus of 139 seats.[55] Approximately 30 percent of elementary-school-age children in the Lakeshore neighborhood in SFUSD schools attended a neighborhood school, which is lower than the Citywide average of 37 percent, and approximately 78 percent of elementary-school age children in the Lakeshore neighborhood in SFUSD schools attended a district school in the southwestern quadrant of the City.[56,57] U.S. 2000 Census data show that there were approximately 2,122 school-age children in the Lakeshore neighborhood, with 802 enrolled in private schools (about 38 percent).[58]

[53] The California Department of Education collects, analyzes, and publishes a wide variety of fiscal, demographic, attendance, and student performance data from local educational agencies. This information is the source of the Education Data Partnership profiles and reports. Website: http://www.ed-data.k12.ca.us/Navigation/fsTwoPanel.asp?bottom=%2Fprofile.asp%3Flevel%3D07%26reportNumber%3D16. Accessed November 20, 2009

[54] San Francisco Unified School District, *Table 1: Elementary Matrix: Comparison of K-5 Students Residences with Locations of Schools Attended*, Fall 2008, and *Table 2 Middle School Matrix: Comparison of 6th to 8th Grade Students Residences with Locations of Schools Attended*, Fall 2008. Website: http://portal.sfusd.edu/data/epc/Enrollment%20patterns%20for%20each%20SF%20City%20Planning%20Neighborhood.pdf. Tabular data accessed at SFUSD website on November 19, 2009.

[55] San Francisco Unified School District, *Comparison of Number of Students Living in Each SF City Planning Neighborhood with Elementary and Middle School Capacity*. Tabular data accessed at: http://portal.sfusd.edu/data/epc/Comparison%20of%20Number%20of%20Students%20Living%20in%20Each%20SF%20City%20Planning%20Nhood.pdf on November 19, 2009.

[56] San Francisco Unified School District, *SFUSD Enrollment Patterns for Each SF City Planning Neighborhood*, Fall 2008, p. 6. Tabular data accessed at: http://portal.sfusd.edu/data/epc/Enrollment%20patterns%20for%20each%20SF%20City%20Planning%20Neighborhood.pdf on November 19, 2009.

[57] San Francisco Unified School District, *Table 1: Elementary Matrix: Comparison of K-5 Students Residences with Locations of Schools Attended*, Fall 2008. Tabular data accessed at: http://portal.sfusd.edu/data/epc/Enrollment%20patterns%20for%20each%20SF%20City%20Planning%20Neighborhood.pdf on November 19, 2009.

[58] San Francisco Unified School District, District data on private school enrollment. Website: http://portal.sfusd.edu/data/epc/Attending%20Private%20School.pdf. Accessed November 20, 2009.

Regulatory Framework

Federal

There are no federal school regulations applicable to the Proposed Project.

State

The major source of school funding for construction and modernization was the State School Construction Program until the passage of the Leroy F. Greene School Facilities Act, or Senate Bill 50 (SB 50), and Proposition 1A, both of which passed on November 3, 1998. SB 50 and Proposition 1A provided a comprehensive school facilities financing and reform program, which authorized a $9.2 billion school facilities bond issue, as well as school construction cost containment provisions. The provisions of SB 50 prohibit local agencies from denying land use approvals on the basis that school facilities are inadequate, and establish a school facility fee cap for legislative actions (e.g., general plan amendments, specific plan adoption, zoning plan amendments). According to Government Code Section 65996, the development fees authorized by SB 50 are deemed to be full and complete school facilities mitigation. The legislation also recognized the need for the fee to be adjusted periodically to keep pace with inflation. Local jurisdictions are further precluded from imposing school-enrollment-related mitigation beyond the development impact fees. These provisions are in effect and will remain in place as long as subsequent state bonds are approved and available. As a result of this legislation, school districts would continue to levy a school fee under existing statutes (Government Code Sections 65995, 65995.5, and 65995.7).

Local

The SFUSD began collecting State-authorized school impact fees in 1987. These fees are collected to mitigate impacts associated with enrollment growth (e.g., enrollment growth from new residential development). The SFUSD collects fees for all construction and building permits issued within the City. Developer fee revenues are used, in conjunction with other SFUSD funds, to support efforts to complete capital improvement projects. Development impact fees are collected when building permits are issued and are based on the type of land use and its size, rather than the anticipated number of new students that may be generated. The current fees applicable to the Proposed Project are $2.24 per square foot of assessable space for residential development, $0.28 per square foot of covered and enclosed space for commercial/industrial development applicable to the “office” category, and $0.18 per square foot of covered and

enclosed space for commercial/industrial development applicable to the "retail and services" land use category.[59]

IMPACTS

Significance Criteria

The Planning Department's Initial Study Checklist Form provides a framework of topics to be considered in evaluating a project's impacts under the CEQA. In accordance with the *CEQA Guidelines*, implementation of a project could have a potentially significant impact related to schools if the project were to:

- Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services.

Methodology

Impacts on school facilities are generally assessed based on the number of new students that would enter the affected school district as a result of proposed residential development(s). To estimate the number of students generated by proposed residential development, California uses student generation rates developed by the California State Department of Education. The department estimates that one dwelling unit would generate an average of 0.7 students (0.5 elementary or middle school students and 0.2 high school students). These rates are a result of statewide sampling that incorporates widely varying dwelling unit types, households, and other demographic characteristics. They are routinely used by school districts that have not developed rates for their local jurisdictions. The student generation rates set by the state, however, do not reflect the urban characteristics of the City, which has fewer children (and, therefore, students) than most communities statewide. To estimate the number of students generated by new housing development, the SFUSD employs a student generation rate of 0.203 students per new housing unit for planning purposes.[60]

The Proposed Project includes the construction of a new 25,000-gsf Pre K-5 private school and day care facility southwest of the Common area (Juan Bautista Circle) along Bucareli Drive at Gonzalez Drive. Approximately 30 percent of school-aged children in San Francisco attend

[59] San Francisco Unified School District, *SB 1693 Annual and Five Year Reports*, November 26, 2007.
[60] San Francisco Planning Department, *Eastern Neighborhoods Community Rezoning and Area Plan FEIR*, August 2008, certified August 2008, Appendix A, Initial Study, p. 42. Available for review at the Planning Department, 1650 Mission Street, 4th Floor, San Francisco, in Case No 2000.048E. Also available at www.transbayproject.org.

private school. However, the analysis in this section conservatively assumes that 100 percent of the project-generated school-age children would attend public schools.

Impact Evaluation

Impact PS-5: The Proposed Project would not result in additional demand for educational facilities. (*Less than Significant*)

The Proposed Project would add 5,679 net new housing units to the area, increasing the number of school-age residents on the Project Site. Based on the SFUSD student generation factor of 0.203 students per housing unit, the proposed net new residential units would contribute approximately 1,150 students to the SFUSD. For purposes of this analysis, it is assumed that these students would attend an SFUSD school. This number of students was distributed evenly by grade, resulting in approximately 532 new elementary students, 266 new middle school students, and 354 new high school students.

The geographic context for the analysis of the Proposed Project's effects associated with schools is the entire City, because while school assignments take into account parents' preferences, which often include where a student lives, assignment is not necessarily to the closest neighborhood school. Enrollment requests for some schools within the southwestern area of San Francisco, such as Jose Ortega Elementary School, generally exceed capacity for these schools. Currently, students are less able to obtain school assignments near their residences. Although exceeding capacity is not typical for the overall SFUSD, it is typical for highly desirable public schools, such as those in the vicinity of the Project Site as well as those in other areas of San Francisco. This situation is unlikely to change.

The schools closest to the Project Site are the Ulloa, Dianne Feinstein, Lakeshore Alternative, Commodore Sloat, Jose Ortega, and Sheridan elementary schools; the Aptos, Hoover, and Denman middle schools; and Lowell Alternative, Lincoln, and City Arts & Technology high schools.

There is capacity for approximately 140 additional elementary-school-age students within the neighborhood elementary schools to accommodate some of the 532 new elementary school, students. Some portion of the new elementary school students would likely attend Jose Ortega Elementary School and the remainder would attend other SFUSD elementary schools. There is available capacity in the District's elementary schools (approximately 2,290 seats), with seats available at elementary schools within the West of Twin Peaks neighborhood, the Excelsior neighborhood, and the Outer and Inner Sunset neighborhoods.[61] Middle school students would be

[61] San Francisco Unified School District, *Capacity Surpluses/Deficits for SFUSD's K-5 Schools.* Website: http://portal.sfusd.edu/data/epc/Capacity%20Surplus%20Deficits%20for%20K-5.pdf. Accessed

expected to attend Aptos Middle School. However, middle school capacities vary substantially, and existing data indicate that there is no excess capacity at Aptos Middle School, which has a current enrollment of 988 students. Other middle schools at capacity include Presidio (1,183), A.P. Giannini (1,207), Hoover (1,205), Marina (941), Roosevelt (723), and Francisco (699). In contrast, Lick (572), Everett (427), Mann (330), Denman (580), and Visitacion Valley (306) have available capacity due to low student demand. These middle schools could accept many more students than were enrolled for the 2008–2009 academic year. Thus, even with limited or no capacity at Aptos Middle School, the combination of the Visitacion Valley, Mann, Denman, and Everett Middle Schools would accommodate the additional 266 project-generated middle school students. As stated earlier, the capacity of the district's high schools is expected to increase as the percentage of high-school-age students in the City is expected to decrease over the next five years. Thus, the 354 high school students from the Proposed Project would likely attend the neighborhood high school, Lincoln High School, or other nearby high schools such as Balboa High School. In contrast, the demand for elementary and middle school seats is expected to increase over the next five years. Thus, not all of the 532 new elementary school students from the Proposed Project could necessarily attend Jose Ortega Elementary School, the area's neighborhood school. This demand, however, would be met by elementary schools within the SFUSD system that are under capacity. Similar to the demand for elementary schools, the increased demand for middle schools will require middle school students from the Project Site to travel further to attend a SFUSD middle school that has excess capacity. As a result, the addition of 532 elementary school, 266 middle school, and 354 high school students would not create a need for additional school facilities, and no significant environmental impact would occur.

Under current policies, the SFUSD would collect developer fees from the Proposed Project to help finance expansion of existing schools, construction of new schools, and rental of temporary classroom facilities. The collection of these fees is considered under SB 50 to fully mitigate any potential effects on schools associated with implementation of the Proposed Project. The approximately 1,150 new students would have an impact on school enrollment and exacerbate any existing capacity problems. However, with payment of the SFUSD-imposed school development fees, the impact is considered to be less#than#significant. No mitigation would be required.

Impact PS-6: The cumulative projects would not result in the additional demand for educational facilities. (*Less than Significant*)

Implementation of the Proposed Project and other cumulative projects would result in an increase of about 7,394 net new housing units over the next 20 years (to 2030), increasing the number of school-age residents within the vicinity of the Project Site. Based on the SFUSD student

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November 19, 2009.

generation factor of 0.203 students per housing unit, the proposed net new residential units would contribute approximately 1,500 students to the SFUSD. For purposes of this analysis, although up to 500 might attend private schools, it is assumed that all 1,500 of these students would attend an SFUSD school. This number of students was distributed evenly by grade, resulting in approximately 690 new elementary students, 350 new middle school students, and 460 new high school students.

The geographic context for the analysis of the development projects' effects associated with schools is the entire City, because while school assignments take into account parents' preferences, which often include where a student lives, assignment is not necessarily to the closest neighborhood school. Enrollment requests for some schools within the southwestern area of San Francisco, such as Jose Ortega Elementary School, generally exceed capacity for these schools. Currently, students within the Study Area are less able to obtain school assignments near their residences. Although exceeding capacity is not typical for the district overall, it is typical for highly desirable public schools, such as those in the vicinity of the Project Site, as well as those throughout San Francisco, and this situation is unlikely to change.

Although the cumulative reasonably foreseeable development in the vicinity of the Proposed Project could result in a total of about 1,500 new school-age children if all development projects are built and occupied over the next 20 years, and other development proposals throughout the City, if approved, could result in additional increases in the school-age population. The City has experienced a declining enrollment in the past decade and before. As summarized in the Schools Setting section on pp. V.L.17–V.L.23, enrollment declined by more than 12 percent between 1998 and 2008. The SFUSD also closed several schools in 2006. Increases are predicted in the elementary school enrollment, but middle school and high school enrollment are not expected to reach 1998 levels over the next five years. About 25 to 30 percent of the school-age children in the City attend private schools, and it is reasonable to assume this would continue in the future. Therefore, it is not expected that growth in the City, including growth from the Parkmerced Project, would significantly contribute to any exceedance of capacity in public school. However, as noted above, there will likely be a continued demand that exceeds capacity for schools in the vicinity of the Project Site.

The SFUSD would continue to collect development fees based on building permits issued in the City. These fees would be used to support capital improvements, including renovation of existing schools and construction of new schools if there was a demand for new facilities. As these development fees are deemed to be complete mitigation for impacts on school facilities, any cumulative impacts would be mitigated to less-than-significant levels. No mitigation would be required.

M. BIOLOGICAL RESOURCES

This section describes the potential effects of the Proposed Project on plants and animals on the Project Site and in the vicinity. The Setting discussion describes the vegetation and wildlife known or expected to be found on the site. The Impacts discussion identifies significance criteria for biological resources impacts and discusses potential changes to these biological resources that could occur if the Proposed Project is implemented.

A biological resources study[1] was conducted for the Proposed Project.[2] Reconnaissance-level field surveys of the Project Site, the southeast corner of the junction of Brotherhood Way and Lake Merced Boulevard, and the southeastern shore of Lake Merced were conducted on May 9, 2008 and June 17, 2009. Additional breeding bird surveys were conducted on June 1 and 27, 2008, and a preliminary assessment of bird movement across Lake Merced Boulevard was conducted on June 17, 2009, to assess potential impacts from wind turbines. Follow-up plant and habitat surveys were conducted on June 27 and 30, 2009. The descriptions and impact evaluations below are drawn from the biological study.

SETTING

The Parkmerced site is within the southwest portion of San Francisco, adjacent to Lake Merced (approximately 0.75 mile from the east shoreline). The site is an existing residential neighborhood with 3,221 residential units on approximately 152 acres of land. The site is highly developed with streets, buildings, and landscaping. The topography is flat, and the site slopes slightly to the west and south. There are no drainage features; runoff is diverted into storm drains and directed off site into the City's combined stormwater and sewer system.

The Project Site includes 170 two-story townhouses and eleven 13-story residential tower buildings, as well as associated parking, building services, a leasing/operations office, and a private pre-school/day care facility. There are also about 75 acres (3,269,300 square feet) of existing open space throughout the Project Site in a network of lawns (including a Meadow lawn area located west of Juan Bautista Circle), courtyard areas, private open space, and playgrounds. Existing vegetation on the Project Site consists of non-native and cultivated species, including mature trees, geometrically-shaped lawns, and a variety of shrubs and ornamental plantings. In the overall landscape design, trees, shrubs, and ornamental plantings are located along landscaped

[1] A biological resources study identifies potentially significant biological resources on a project site that may be impacted by a proposed project's development activities. The study determines the significance of those impacts, and proposes feasible mitigation measure(s) to reduce those impacts.

[2] LSA Associates, Inc., *Biological Resources Study, Parkmerced Project, San Francisco, California*, March 23, 2010 (hereinafter referred to as "*Biological Resources Study*"). This document is available for public review at the Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

drives, exterior block façades, shared open spaces, courtyards, and service areas. The Project Site contains over 1,500 trees: 298 significant trees, 189 street trees,[3] and over 1,000 interior trees[4,5]

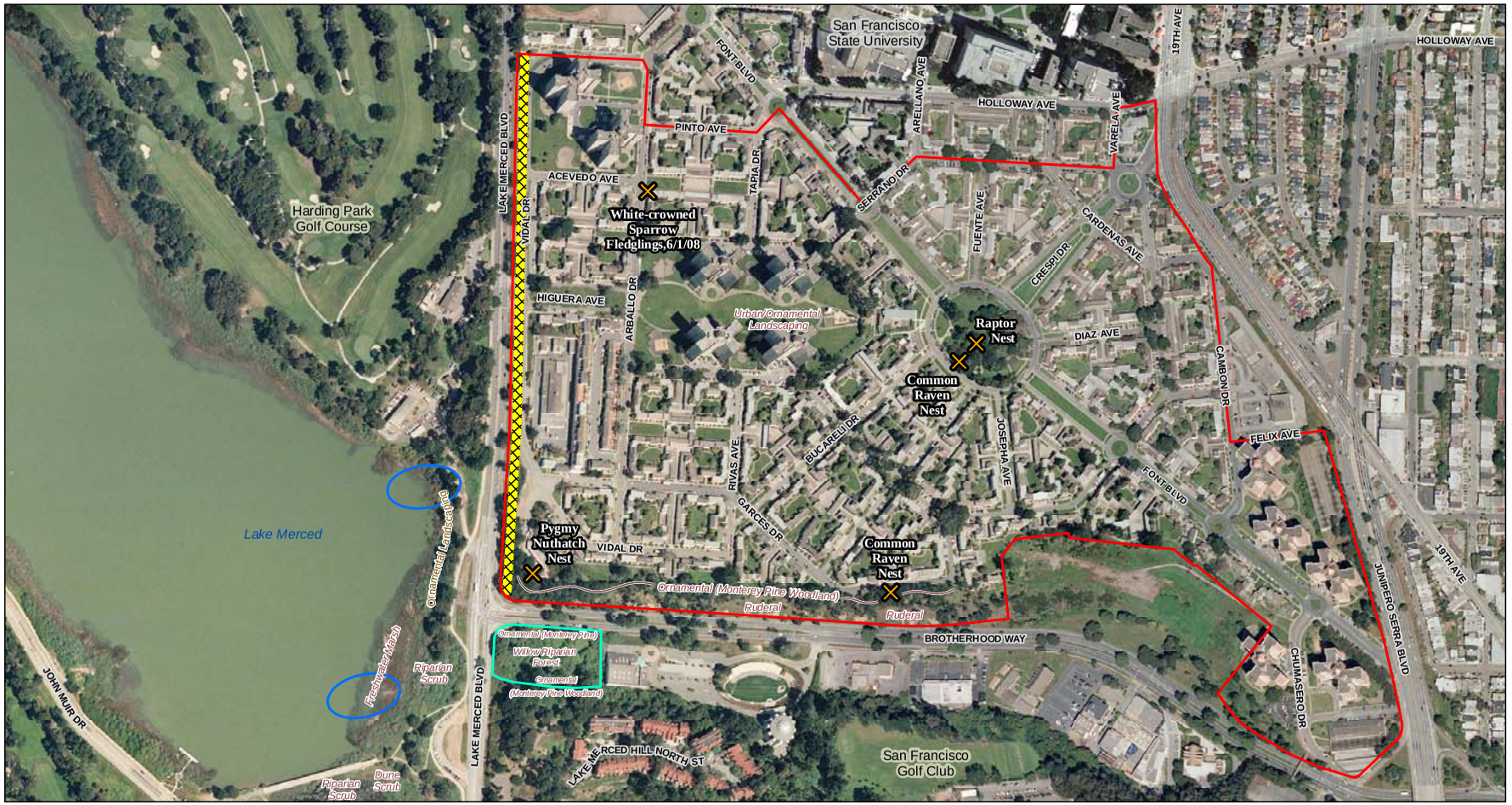
VEGETATION

Project Site[6]

Habitats of the Project Site and vicinity are shown in Figure V.M.1: Habitats and Nest Observations. Existing vegetation consists primarily of ornamental trees and shrubs. Any native plant communities that once existed were removed during site construction in the early 1940s. Monterey pine (*Pinus radiata*) is the most common tree species and occurs as large, isolated street trees within the Commons and along the southern boundary of the Project Site north of Brotherhood Way. Other ornamental trees throughout the site include eucalyptus species, including river red gum (*Eucalyptus camaldulensis*), blue gum (*Eucalyptus globulus*), and bushy yak (*Eucalyptus lehmanniii*); pittosporum (*Pittosporum* sp.); olive (*Olea europea*); Monterey cypress (*Cupressus macrocarpa*); plum (*Prunus* sp.); and coast live oak (*Quercus agrifolia*). Monterey cypress and pine are native to the central California coast, but do not occur naturally in the San Francisco Bay Area. Ornamental shrubs on the residential portions of the site include myrtle (*Myrtle* sp.), bottlebrush (*Callistemon* sp.), cotoneaster (*Cotoneaster* sp.), and boxwood (*Buxus* sp.). There are numerous lawns throughout the site, including lawns in small courtyards surrounded by apartment buildings and larger expanses of managed turf.

The vegetation on the southern edge of the site along Brotherhood Way is more natural in appearance than the manicured lawns and streets, resembling a Monterey pine woodland with widely spaced shrubs and dense herbaceous ground cover (see Figure V.M.1). Beside Monterey pine, other plants in this area include small coast redwood (*Sequoia sempervirens*) and coast live oak (*Quercus agrifolia*), as well as toyon (*Heteromeles arbutifolia*), myrtle (*Myrtle* sp.), acacia (*Acacia* sp.), and jade plant (*Crassula ovata*). The understory is dominated by non-native annual grasses such as ripgut brome (*Bromus diandrus*), wild oats (*Avena fatua*), hare barley (*Hordeum murinum* ssp. *leporinum*), and veldt grass (*Ehrharta calcyna*). Openings in and adjacent to the woodland support dense patches of ruderal (weedy) and shrub species, including wild radish (*Raphanus sativa*), blackberry (*Rubus* sp.), English ivy (*Hedera helix*), and nasturtium (*Tropaeolum majus*). Additional species observed in the pine woodland include sow thistle (*Sonchus* sp.), fumitory (*Fumaria parviflora*), miner's lettuce (*Claytonia perfoliata*), California

[3] HortScience, *Tree Survey Parkmerced*, San Francisco, CA, July 2007.
[4] HortScience, *Interior Tree Survey Villas Parkmerced*, San Francisco, CA, August 2008.
[5] The San Francisco Urban Forestry Ordinance (Article 16 of the San Francisco Public Works Code) identifies significant trees as trees that are within 10 feet of the property edge of the sidewalk and are more than 20 feet in height, have a canopy greater than 15 feet in diameter, or have a trunk diameter greater than 12inches diameter at breast height.
[6] *Biological Resources Study*, p. 14.



SOURCE: LSA, Turnstone Consulting

- Project Boundary
- Stormwater Outfall (Approximate Location)
- Willow Basin
- Approximate Location of Proposed Wind Turbines
- 2008–2009 Nest Observations

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0 400
Feet

PARKMERCED PROJECT

FIGURE V.M.1: HABITATS AND NEST OBSERVATIONS

poppy (*Eschscholzia californica*), redstem filaree (*Erodium cicutarium*), smooth cat's ear (*Hypochaeris glabra*), and cutleaf plantain (*Plantago coronopus*).

Off-Site: Proposed Locations for Stormwater Facilities[7]

Willow Basin

A basin dominated by arroyo willow (*Salix lasiolepis*) occurs south of the Project Site across Brotherhood Way on lands owned by the San Francisco Public Utilities Commission. This area is referred to as the "willow basin" in this section. The bottom of this basin holds approximately 1 foot of water during the winter months. This basin was once a pond connected to Lake Merced, but it was isolated from the lake when Lake Merced Boulevard was constructed.

The variety of native riparian plant species that grow in the willow basin, the size of some of the willow and wax myrtle trees, and the preponderance of native species present make this area a biologically valuable community despite the high density of Cape ivy, a non-native plant. In addition to high biological values, the willow basin may be protected by Clean Water Act regulations regarding wetlands. Based on inundation during winter months and a dominance of wetland vegetation, the lower portion of the basin may be considered jurisdictional wetlands by the U.S. Army Corps of Engineers (USACE) and/or the San Francisco Bay Regional Water Quality Control Board (RWQCB) (see "Clean Water Act" under "Regulatory Framework" on pp. V.M.10-V.M.11).

This basin is surrounded by upland vegetation consisting of Monterey pine and Monterey cypress with an understory of non-native grasses including wild oats, ripgut brome, and rattlesnake grass (*Briza maxima*). A few coast live oaks grow on the slopes of the basin and canyon live oak (*Quercus chrysolepis*) occurs at the top of the south slope of the basin. The understory beneath the oak trees consists of California blackberry, coyote brush (*Baccharis pilularis*), and poison oak (*Toxicodendron diversilobum*).

The bottom of the basin is dominated by arroyo willow with a canopy closure that varies from being completely open to 60 percent cover. Some of the willow trees reach 18 to 24 inches in diameter at breast height (dbh). Yellow willow (*Salix lucida* ssp. *lasiandra*) grows in one small area of the basin.

The understory of the willow basin is dominated by California blackberry (*Rubus ursinus*) and Cape ivy (*Delaria odorata*). Other species in the understory include Barbara sedge (*Carex barbarae*), water parsley (*Oenanthe sarmentosa*), chain fern (*Woodwardia fimbriata*), wild cucumber (*Marah fabacea*), bee plant (*Scrophularia californica*), giant vetch (*Vicia gigantean*), poison hemlock (*Conium maculatum*), and nettle (*Urtica holosericea*). Sword fern (*Polisticum*

[7] *Biological Resources Study*, pp. 14-16.

munitum) and bracken fern (*Pteridium aqualinum*) grow on the slopes of the basin. A few creek dogwood (*Cornus sericea*) and California wax myrtle (*Myrica californica*) trees also occur in the basin.

Lake Merced Shoreline

The shoreline of Lake Merced nearest the Project Site is dominated by ornamental landscaping consisting of planted conifers (Monterey pine and Monterey cypress), riparian scrub vegetation dominated by arroyo willow, and freshwater marsh vegetation consisting of swamp knotweed (*Polygonum amphibium* var. *emersum*) and California bulrush (*Scirpus californicus*). The shoreline slopes steeply up from the water's edge; the slope is approximately 20 feet high. The planted conifers grow on the upper portion of the slope. Riparian scrub consisting of arroyo willow, with an understory of California blackberry and/or Himalayan blackberry (*Rubus discolor*), occurs in thick, impenetrable stands along the bottom of the slope. Below the riparian scrub is a band of freshwater marsh dominated by swamp knotweed and California bulrush. The riparian scrub and freshwater marsh habitats are likely to be considered jurisdictional wetlands by USACE (see "Clean Water Act" on pp. V.M.10-V.M.11).

Dune scrub, a sensitive vegetation type, occurs on the bank of Lake Merced approximately 1,000 feet southwest of the Project Site. This vegetation occurs in small patches surrounded by wetland and ornamental vegetation. The dominant species include lizard tail (*Eriophyllum stachaedifolium*) and coast buckwheat (*Eriogonum latifolium*). Other species include beach knotweed (*Polygonum paronychia*) and cardionema (*Cardionema ramosissimum*).

WILDLIFE

Project Site[8]

Wildlife species on the Project Site are those that have adapted to the urban environment and are able to co-exist with humans. Table V.M.1 lists the species observed at Parkmerced during the field surveys. Most of the species observed during the surveys were birds since they are more visible, numerous, and widely distributed than amphibians, reptiles, and mammals.[9] In addition to the common urban species such as American robin, house finch, and house sparrow, the Project Site supports several conifer-adapted species that are attracted to the numerous Monterey pines throughout the site. The soft wood of the pines is ideal for cavity nesters such as pygmy nuthatch and chestnut-backed chickadee, and cones provide foraging habitat for seed-eaters such as pine siskin and purple finch. The pines also provide nest sites for urban-nesting raptors such as Cooper's hawk and red-shouldered hawk and for the common raven. All three of these species were confirmed as nesting on site (see Figure V.M.1). The Cooper's hawk nest was in a large

[8] *Biological Resources Study*, pp. 16-17.
[9] *Biological Resources Study*, p. 35, Wildlife Species List, p. A-1.

Table V.M.1: Wildlife Species Observed at Parkmerced, May–June 2008 and June 17, 2009

Common Name	Scientific Name	Seasonal Occurrence/Nesting
Birds		
Cooper's hawk*	*Accipiter cooperi*	R
Red-shouldered hawk*	*Buteo lineatus*	R
Western gull	*Larus occidentalis*	R
Rock pigeon	*Columba livia*	R
White-throated swift	*Aeronautes saxatalis*	S
Anna's hummingbird	*Calypte anna*	R
Downy woodpecker	*Picoides pubescens*	R
Black phoebe	*Sayornis nigricans*	R
Common raven*	*Corvus corax*	R
Violet-green swallow	*Tachycineta thalassina*	S
Cliff swallow	*Petrochelidon pyrrhonata*	S
Barn swallow	*Hirundo rustica*	S
Chestnut-backed chickadee	*Poecile rufescens*	R
Pygmy nuthatch*	*Sitta pygmaea*	R
American robin	*Turdus migratorius*	R
European starling	*Sturnus vulgaris*	R
Cedar waxwing	*Bombycilla cedrorum*	W
White-crowned sparrow*	*Zonotrichia leucophrys*	R
Dark-eyed junco	*Junco hyemalis*	R
Red-winged blackbird	*Agelaius phoeniceus*	R
Brewer's blackbird	*Euphagus cyanocephalus*	R
Brown-headed cowbird	*Molothrus ater*	R
Purple finch	*Carpodacus purpureus*	R
House finch	*Carpodacus mexicanus*	R
Red crossbill	*Loxia curvirostra*	R
Pine siskin	*Carduelis pinus*	R
American goldfinch	*Carduelis tristis*	R
House sparrow	*Passer domesticus*	R
Mammals		
California vole (burrows)	*Microtus californicus*	R
Botta's pocket gopher	*Thomomys bottae*	R

Notes:
* = confirmed breeding on site.
Seasonal Occurrence/Nesting Codes:
R = Year-round resident: Resident/expected to nest/breed on or in vicinity of site.
S = Summer resident: Breeds on or in vicinity of site, but migrates elsewhere for winter.
W = Winter visitor: Regularly present during winter, but does not nest locally.

Source: LSA Associates, Inc., *Biological Resources Study, Parkmerced Project, San Francisco, California*, March 23, 2010

Monterey pine in the open space inside Juan Bautista Circle. Four young successfully fledged from the nest in 2008, with all four out of the nest by June 27, 2008. On June 7, 2009, three red-shouldered hawk juveniles were seen perched on the branches adjacent to the same nest, as well as in nearby trees. This observation indicates that a pair of red-shouldered hawks displaced the Cooper's hawk pair that nested there in 2008.[10]

Although no amphibians or reptiles were observed during the surveys, the Project Site can be expected to support common, urban-adapted species such as California slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), northern Pacific treefrog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis*), and common garter snake (*Thamnophis sirtalis*). The Monterey pine stand along the southern boundary of the Project Site contains the best habitat for such species, because the dense herbaceous ground cover, shrubs, and scattered woody debris provide cover and forage areas. Irrigated features that retain moisture year-round, such as the lawns adjacent to the high-rise apartment buildings, provide hydration and foraging habitat for salamanders and common garter snakes.

California vole (*Microtus californicus*) burrows were observed in the sandy slope in the Monterey pine woodland at the southern site boundary, and Botta's pocket gopher (*Thomomys bottae*) mounds were observed in several of the manicured lawns throughout the site. Although no other mammals were seen during the site surveys, numerous urban-adapted species are known to occur in San Francisco and are likely use the site on an intermittent basis. Additional mammals expected to occur include Virginia opossum (*Didelphis virginiana*), eastern fox squirrel (*Sciurus niger*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), northern raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). The status and distribution of bats in San Francisco is not well known; however, several species of year-round and migratory bats are common in the Bay Area and are likely to forage at Lake Merced as well as the Project Site. The big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), and Yuma myotis (*Myotis yumanensis*) are year-round residents of the Bay Area and possibly Project Site and vicinity. The hoary bat (*Lasiurus cinereus*), which migrates along the Pacific coast, roosts in trees and may use trees around Lake Merced and in Parkmerced.

Off-Site: Proposed Locations for Stormwater Facilities[11]

Willow Basin

The willow basin, with its dense and varied vegetation, offers wildlife more foraging and nesting opportunities than the surrounding developed areas. Bird species observed in the willow basin and adjacent uplands in the June 2009 survey included downy woodpecker, northern flicker,

[10] *Biological Resources Study*, p. 16.
[11] *Biological Resources Study*, pp. 17-18.

Anna's hummingbird, Allen's hummingbird, Hutton's vireo, chestnut-backed chickadee, song sparrow, brown-headed cowbird, and purple finch. The site visit was not conducted during nesting season; therefore, no nesting was observed in the basin. However, suitable nesting habitat is present for Pacific-slope flycatcher, black phoebe, warbling vireo, winter wren, American robin, Wilson's warbler, California towhee, and dark-eyed junco. The willow basin and riparian scrub habitats along the Lake Merced shoreline may serve as the only suitable nesting habitat for several of these species in the immediate vicinity. Additional bird species that likely use the basin during the winter and/or migration include hermit thrush, ruby-crowned kinglet, yellow-rumped warbler, yellow warbler (migration only), Townsend's warbler, Lincoln's sparrow, golden-crowned sparrow, and fox sparrow.

The willow basin is expected to support the same amphibian, reptile, and mammal species as the Project Site. In addition, the lower seasonally inundated portion of the basin may support breeding California newts (*Taricha torosa*), and likely supports breeding northern Pacific treefrogs, arboreal salamanders, and common garter snakes. The willow basin does not provide suitable habitat for the California red-legged frog (*Rana draytonii*) because it is isolated from other habitats by the surrounding roads and urban development, and its ponding is of short duration (i.e., it is limited to the rainy season).

Lake Merced Shoreline

The ornamental vegetation on the upper portion of the Lake Merced shoreline slope likely supports many of the same urban-adapted species expected to occur on the Project Site. Numerous tree, barn, and cliff swallows were seen foraging in the area during a site visit in June 2009. Several snags[12] in this area contain potential nest sites for cavity-nesting swallows (i.e., tree and violet-green swallows) and woodpeckers. The habitat structure of the dense arroyo willow stand at the lake's margin is similar to the willow basin's, and likely supports similar species. Willow stands around the lake also support nesting green herons. The freshwater marsh vegetation (i.e., bulrush) below the willows provides nesting and foraging habitat for marsh wren, salt marsh common yellowthroat (see "Special-Status Species," pp. V.M.14-V.M.20), song sparrow, western tanager, and red-winged blackbird. The marsh and willow stands also provide foraging habitat for wading birds such as great egret, snowy egret, and great blue heron.

Amphibians and reptile species known to occur in Lake Merced include American bullfrog (*Lithobates catesbeiana*), western pond turtle (*Actinemys marmorata*), red-eared slider (*Trachemys scripta*), and soft-shell turtle (*Apalone* sp.), the latter two of which are non-native species. A single California red-legged frog (*Rana draytonii*) was observed on the eastern shore of Impound Lake (i.e., southern portion of Lake Merced south of concrete bridge) on May 25,

[12] A "snag" refers to a standing, partly or completely dead tree, and/or fallen trees, branches, or other pieces of naturally occurring wood found sunken in a body of water.

2000, but red-legged frogs have not been observed since then.[13] The abundance of non-native predators (e.g., bullfrog, predatory fish) in the remaining portions of the lake (i.e, North, East, and South Lake) likely precludes the occurrence of red-legged frogs. It is therefore unlikely that red-legged frogs are present on the southeastern shoreline of South Lake.

The Pacific Flyway is a major north-south route of travel for migratory birds along the western portion of the Americas, extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds, or travelling to overwintering sites. Lake Merced is also located within the Pacific Flyway and provides habitat for migratory birds.

REGULATORY FRAMEWORK

Biological resources are protected by federal, state, and local laws and regulations. Pursuant to these laws and regulations, some plant and animal species and habitats have special status. In the discussion below, statutes and ordinances are described first, followed by an overview of the special status species on or in the vicinity of the Project Site.

Federal Endangered Species Act[14]

The United States Fish and Wildlife Service (USFWS) has jurisdiction over federally listed threatened and endangered plant and animal species. A threatened species is one that is likely to become endangered in the foreseeable future. An endangered species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. The Federal Endangered Species Act (FESA) protects listed species from harm or "take," broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Any such activity can be defined as a "take" even if it is unintentional or accidental.

Federal agencies involved in funding or permitting activities that may result in take of federally listed species (e.g., USACE) are required under Section 7 of FESA to consult with the USFWS prior to issuing take permits or authorizing finds. A FESA Section 10 take permit from the USFWS is required for any activity that could result in the take of a federally listed animal species and is not authorized as part of a Section 7 consultation. This does not apply to listed species on private land with no federal funding or regulatory jurisdiction.

In addition to a list of endangered and threatened species that are legally protected under FESA, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Register.

[13] *Biological Resources Study*, p. 17.
[14] 16 U.S.C. 1531-1544.

A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. Proposed species could be listed at any time, and many federal agencies protect them as if they already are listed. Candidate species are not afforded legal protection under FESA.

Clean Water Act[15]

Under Section 404 of the Clean Water Act, the USACE is responsible for regulating the discharge of fill material into waters of the U.S.

Waters of the U.S. are defined in 33 Code of Federal Regulations (CFR) Part 328.3(a) and fall into two broad categories: wetlands and other waters. The Project Site could affect wetlands in the willow basin and along the Lake Merced shoreline. Wetlands include marshes, wet meadows, seeps, floodplains, basins, and other areas experiencing extended seasonal or permanent soil saturation that support wetland vegetation. Seasonally or intermittently inundated features, such as seasonal ponds, ephemeral streams, and tidal marshes, are categorized as wetlands if they have hydric soils[16] and support wetland plant communities. Other waters include unvegetated waterbodies and watercourses such as rivers, streams, lakes, springs, ponds, coastal waters, and estuaries. Seasonally inundated or intermittent waterbodies or watercourses that do not exhibit wetland characteristics are often classified as other waters of the U.S.

Wetlands and other waters that cannot trace a continuous hydrologic connection to a navigable water of the U.S. are not tributary to waters of the U.S. These are termed "isolated" wetlands and waters. Isolated wetlands and waters are jurisdictional when their destruction or degradation can affect interstate or foreign commerce (33 CFR Part 328.3[a]). The USACE may or may not take jurisdiction over isolated wetlands, depending on the specific circumstances.

In general, a Section 404 permit must be obtained from the USACE before filling or grading jurisdictional wetlands or other waters of the U.S. Certain projects may qualify for authorization under a Nationwide Permit. The purpose of the Nationwide Permit program is to streamline the evaluation and approval process throughout the nation for certain types of activities that have only minimal impacts to the aquatic environment. Many Nationwide Permits are only authorized after the applicant has submitted a pre-construction notification to the appropriate USACE office. The USACE is required to consult with the USFWS and/or the National Marine Fisheries Service (NMFS) under Section 7 of FESA if the permitted activity may result in the take of federally listed species.

[15] 33 U.S.C. 1251 et seq.
[16] A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

All USACE permits require state water quality certification under Section 401 of the Clean Water Act. In the Project Site vicinity, this regulatory program is administered by the RWQCB. Projects that propose to fill wetlands or other waters of the U.S. must apply for water quality certification from the RWQCB. The RWQCB has adopted a policy requiring mitigation for any loss of wetland, streambed, or other waters of the U.S.

Migratory Bird Treaty Act[17]

The federal Migratory Bird Treaty Act (MBTA) prohibits the taking, hunting, killing, selling, and purchasing of migratory birds, parts of migratory birds, or their eggs and nests. As used in the MBTA, the term "take" is defined as "to pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill, unless the context otherwise requires." Most bird species native to North America are covered by this act.

Porter-Cologne Water Quality Control Act[18]

Under this Act (California Water Code Sections 13000–14920), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the state's waters. During the application review process, the RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the state. To protect these beneficial uses, the RWQCB requires most projects involving discharge into waters of the state to incorporate water quality control measures. For most construction projects, the RWQCB requires the use of construction and post-construction Best Management Practices.

California Endangered Species Act[19]

The California Department of Fish and Game (CDFG) has jurisdiction over threatened or endangered species that are formally listed by the state under the California Endangered Species Act (CESA). CESA is similar to FESA both in process and substance; it is intended to provide additional protection to threatened and endangered species in California. CESA does not supersede FESA, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both state and federal laws apply) or under only one act. A candidate species is one that the Fish and Game Commission has formally noticed as being under review by CDFG for addition to the state list. Candidate species are protected by the provisions of CESA.

[17] 16 U.S.C. 703-712.
[18] California Water Code Section 13000 et seq.
[19] California Fish & Game Code Section 2050 et seq.

California Fish and Game Code[20]

The CDFG is also responsible for enforcing the California Fish and Game Code, which contains several provisions potentially relevant to construction projects. For example, Section 1600 of the Fish and Game Code governs the issuance of Lake and Streambed Alteration Agreements by the CDFG. Lake and Streambed Alteration Agreements are required whenever project activities substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as such by the CDFG.

The Fish and Game Code also lists animal species designated as Fully Protected; these species may not be taken or possessed at any time. The Fully Protected designation does not allow "incidental take" and is thus more restrictive than CESA. Fully Protected species are listed in Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the Fish and Game Code, while protected amphibians and reptiles are listed in Chapter 5, Sections 41 and 42.

Section 3503 of the Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including European starling and house sparrow, are not afforded such protection under the MBTA or the California Fish and Game Code.

California Environmental Quality Act[21]

Under Section 15380 of the *California Environmental Quality Act Guidelines (CEQA Guidelines)*,[22] a species not included on any formal list "shall nevertheless be considered rare or endangered if the species can be shown by a local agency to meet the criteria" for listing. This provides an agency with the ability to protect species from a project's potential impacts until the responsible government agencies have an opportunity to designate the species as protected if warranted.

San Francisco Urban Forestry Ordinance

The San Francisco Urban Forestry Ordinance (Article 16 of the San Francisco Public Works Code) was enacted to ensure the protection of trees within and adjacent to public areas. The City

[20] California Code of Regulations, Title 14, Division 1.
[21] California Public Resources Code Section 21000 et seq.
[22] California Code of Regulations, Title 14, Section 15000 et seq.

and County of San Francisco currently considers "Protected Trees" as landmark trees, significant trees, and street trees, defined as follows:

- Landmark trees have the highest level of protection in the City. They meet criteria for age, size, shape, species, location, historical association, visual quality, or other contribution to the City's character, and have been found worthy of landmark status after public hearings at both the Urban Forestry Council and the Board of Supervisors. Temporary landmark status is also afforded to nominated trees currently undergoing the public hearing process.
- Significant trees are within 10 feet of the property edge of the sidewalk and more than 20 feet in height, or with a canopy greater than 15 feet in diameter, or with a trunk diameter greater than 12 inches dbh.
- Street trees are trees within the public right-of-way. Street trees may be maintained by either the adjacent property owner or the City.

The Department of Public Works must issue a permit before any of these trees can be removed. If any construction activity is to occur within the dripline of any protected tree, an International Society of Arboriculture-certified arborist must prepare a tree protection plan, and the plan must be submitted to the Planning Department for review and approval before a building permit is issued.

California Species of Special Concern

The CDFG maintains an administrative list of Species of Special Concern (SSC),[23] defined as a "species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- Is extirpated[24] from the State, or, in the case of birds, in its primary seasonal or breeding role;
- Is listed as federally, but not State-, threatened or endangered;
- Meets the State definition of threatened or endangered but has not formally been listed;
- Is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status;
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status."

[23] California Fish and Game, California Code of Regulations, Title 14, Division 1. Fully Protected species are listed in Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the Fish and Game Code, while protected amphibians and reptiles are listed in Chapter 5, Sections 41 and 42 (CCR; Title 14, Div. 1).

[24] "Extirpated" means that the species has been locally eliminated but may exist elsewhere and is not extinct.

The CDFG's Nongame Wildlife Program is responsible for producing and updating SSC publications for mammals, birds, and reptiles and amphibians. The Fisheries Branch is responsible for updates to the Fish SSC document and list. Section 15380 of the *CEQA Guidelines* indicates that SSC should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outline therein. In contrast to species listed in the FESA or CESA, however, SSC have no formal legal status.

California Native Plant Society Plant Lists[25]

The non-governmental California Native Plant Society (CNPS) has developed the following lists of plants of concern in California:

- List 1A plants are species, subspecies, or varieties that are considered to be extinct.
- List 1B plants are considered rare, threatened, or endangered in California and elsewhere.
- List 2 plants are considered rare, threatened, or endangered in California but are more common elsewhere.
- List 3 plants are potentially endangered but additional information on taxonomy, rarity, and endangerment is needed.
- List 4 plants have a limited distribution but are currently not endangered.

Substantial impacts to plants on Lists 1A, 1B, and 2 are typically considered significant based on Section 15380 of the CEQA Guidelines depending on the policy of the Lead Agency. Plants on Lists 3 and 4 may be evaluated by the Lead Agency on a case-by-case basis.

Special-Status Species

Plants

The California Natural Diversity Database[26] (CNDDB) contains records for 28 special-status plant species that could occur on or in the vicinity of Parkmerced (i.e., San Francisco South USGS quadrangle). Eight of these species are considered by the CNDDB to be extirpated or probably extirpated: adobe sanicle (*Sanicula maritima*), beach layia (*Layia carnosa*), Presidio manzanita (*Arctostaphylos hookeri* ssp. *ravenii*), Franciscan manzanita (*Arctostaphylos hookeri* ssp. *franciscana*), alkali milk-vetch (*Astragalus tener* var. *tener*), seaside tarplant (*Hemizonia congesta* ssp. *congesta*; formerly known as *Hemizonia leucocephala*), rose leptosiphon (*Leptosiphon rosaceus*), bristly sedge (*Carex carnosa*), and fragrant fritillary (*Fritillaria liliacea*). The other 20 species that could occur on or in the vicinity of Parkmerced are listed in Table V.M.2.

[25] California Native Plant Society, http://www.cnps.org/cnps/rareplants/ranking.php, accessed March 22, 2010.
[26] California Department of Fish and Game, Biogeographic Data Branch, Sacramento, California, California Natural Diversity Database, Commercial Version dated February 2, 2008,

Table V.M.2: Special-Status Species Potentially Occurring on or in the Vicinity of Parkmerced

Species	Status[a]	Habitat	Potential for Occurrence
PLANTS			
Amsinckia lunaris Bent-flowered fiddleneck	1B	Oak woodland, grassland	Not expected to occur due to lack of suitable habitat.
Arctostaphylos imbricata San Bruno Mountain manzanita	SE, 1B	Chaparral or coastal scrub on San Bruno Mountain; mostly known from a few sandstone outcrops	Not expected to occur due to lack of suitable habitat; species distribution limited to San Bruno Mountain.
Arctostaphylos montaraensis Montara manzanita	1B	Chaparral, coastal scrub	Not expected to occur due to lack of suitable habitat.
Arctostaphylos pacifica Pacific manzanita	FE, 1B	Coastal scrub	Not expected to occur due to lack of suitable habitat.
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	1B	Coastal scrub, coastal prairie, coastal dunes; sandy soils on terraces and slopes	Occurs south of the causeway across Lake Merced on east shore of Impound Lake.
Chorizanthe robusta var. *robusta* Robust spineflower	FE, 1B	Oak woodland, coastal dunes, coastal scrub; sandy terraces and bluffs or in loose sand	Not expected to occur due to prior disturbance and lack of suitable habitat.
Cirsium andrewsii Franciscan thistle	1B	Coastal scrub, mixed evergreen forest; sometimes occurs in serpentine seeps	Not expected to occur due to prior disturbance and lack of suitable habitat.
Cirsium occidentale var. *compactum* Compact cobwebby thistle	1B	Chaparral, coastal dunes, coastal prairie, coastal scrub	Not expected to occur due to prior disturbance and lack of suitable habitat.
Collinsia multicolor San Francisco collinsia	1B	Coniferous forest, coastal scrub; decomposed shale substrate mixed with humus	Not expected to occur due to lack of suitable habitat.
Gilia capitata ssp. *chamissonis* Blue coast gilia	1B	Coastal dunes, coastal scrub	Not expected to occur due to lack of suitable habitat.

Table V.M.2 (continued)

Species	Status[a]	Habitat	Potential for Occurrence
Grindelia hirsutula var. *maritima* San Francisco gumplant	1B	Coastal scrub, grassland; sandy or serpentine slopes, sea bluffs	Formerly observed along the east side of Lake Merced Blvd near its intersection with Brotherhood Way.
Helianthella castanea Diablo helianthella	1B	Mixed evergreen forest, chaparral, oak woodland, coastal scrub, riparian woodland, grassland; usually in chaparral/oak woodland interface in rocky soils	Not expected to occur due to lack of suitable habitat.
Hesperevax sparsiflora var. *brevifolia* Short-leaved evax	2	Coastal bluff scrub, coastal dunes; sandy bluffs and flats	Not expected to occur due to prior disturbance and lack of suitable habitat; only nearby occurrence is from McLaren Park (date and specific location unknown).
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	1B	Coniferous forest, coastal scrub, chaparral	Not expected to occur due to lack of suitable habitat.
Lessingia germanorum San Francisco lessingia	FE, SE, 1B	Coastal scrub; open sandy soils	Not expected to occur due to prior disturbance and lack of suitable habitat.
Malacothamnus arcuatus Arcuate bush-mallow	1B	Chaparral; gravelly alluvium	Not expected to occur due to lack of suitable habitat.
Pentachaeta bellidiflora White-rayed pentachaeta	FE, SE, 1B	Grassland; open dry rocky slopes and grassy areas	Not expected to occur due to lack of suitable habitat; CNDDB record on San Bruno Mountain of unknown status.
Silene verecunda ssp. *verecunda* San Francisco campion	1B	Coastal scrub, grassland, chaparral, coastal prairie	Not expected to occur due to lack of suitable habitat.
Triphysaria floribunda San Francisco owl's-clover	1B	Coastal prairie, grassland	Not expected to occur due to prior disturbance and lack of suitable habitat.
Triquetrella californica Coastal triquetrella	1B	Coastal scrub	Not expected to occur due to prior disturbance and lack of suitable habitat.

Table V.M.2 (continued)

Species	Status[a]	Habitat	Potential for Occurrence
ANIMALS			
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	Coastal mountains with grassy ground cover, mainly in the vicinity of San Bruno Mountain; colonies located on steep, north-facing slopes in fog belt; host plant is *Sedum spathulifolium*	Not expected to occur due to lack of suitable larval food plant and habitat; species distribution limited to San Bruno Mountain.
Mission blue butterfly *Plebejus icarioides missionensis*	FE	Grasslands of the San Francisco peninsula; three larval host plants: *Lupinus albifrons*, *L. variicolor*, and *L. formosus*	Not expected to occur due to lack of suitable larval food plant and habitat.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	Coastal scrub of the San Francisco peninsula; host plant is *Viola pedunculata*, most adults found on east-facing slopes	Not expected to occur due to lack of suitable larval food plant and habitat.
California red-legged frog *Rana draytonii*	FT, CSC	Ponds, streams, drainages and associated uplands; requires areas of deep, still, and/or slow-moving water for breeding	Historically known from Lake Merced but no recent records except for impound. Not found in Lake Merced during protocol-level surveys in 2000. No suitable habitat elsewhere in the Project vicinity including willow basin due to urban surroundings and lack of prolonged inundation.
Western pond turtle *Actinemys marmorata*	CSC	Ponds, streams, drainages and associated uplands	Known to occur at east Lake Merced, may occur along south Lake Merced shoreline including outfall areas, but not expected to occur in willow basin due to lack of permanent inundation or on Project Site due to lack of suitable habitat.
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE, SE	Freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County; prefers dense cover and water depths of at least 1 foot	Not expected to occur due to lack of suitable habitat.
California black rail *Laterallus jamaicensis* coturniculus	ST	Salt marshes bordering larger bays, also found in brackish and freshwater marshes	Historically known from Lake Merced, but no suitable habitat on site.
California clapper rail *Rallus longirostris obsoletus*	FE, SE	Tidal salt marshes with sloughs and substantial cordgrass (Spartina sp.) cover	Not expected to occur due to lack of suitable habitat.

Table V.M.2 (continued)

Species	Status[a]	Habitat	Potential for Occurrence
Bank swallow *Riparia riparia*	SE	Vertical banks or cliffs with fine-textured or sandy soils near streams, rivers, lakes, or ocean; colonial nester	Known to forage over Lake Merced. only known nest colony in San Francisco located at Fort Funston.
Salt marsh common yellowthroat *Geothylpis trichas sinuosa*	CSC	Salt, brackish, and freshwater marshes, and riparian woodlands; nests on or near ground in low vegetation	Known to occur in freshwater marsh vegetation fringing Lake Merced.
Alameda song sparrow *Melospiza melodia pusillula*	CSC	Tidal salt marshes fringing south San Francisco Bay	Not expected to occur due to lack of suitable habitat.

Notes:
[a] Status:
FE = federally listed as endangered
FT = federally listed as threatened
SE = State-listed as endangered
ST = State-listed as threatened
CSC = California Species of Special Concern
1B = California Native Plant Society List 1B: species considered rare or endangered in California and elsewhere
2 = California Native Plant Society List 2: species considered rare or endangered in California and more common elsewhere

Source: LSA Associates, Inc., *Biological Resources Study, Parkmerced Project, San Francisco, California,* October 16, 2009

The San Francisco gum plant (*Grindelia hirsutula* var. *maritima*), a CNPS-listed 1B species, was first observed in 1990 near a sandy pedestrian trail near the willow basin. It was observed again in 2008 but was not observed during field work in 2009. The San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*) occurs in dune scrub habitat south of the causeway on the northeast bank of Impound Lake (i.e., southern portion of Lake Merced south of concrete bridge). These species are not known to occur elsewhere in the Project Site or vicinity. None of the other special-status plant species are expected to occur on the Project Site or off-site wastewater facility locations because of prior disturbance, the urban setting, and the consequent lack of native habitats such as chaparral, coastal scrub, or grassland.

Animals

The CNDDB contains records for 11 special-status animal species whose large-scale distribution includes the Project Site vicinity (see Table V.M.2). However, locally-specific habitat conditions are not suitable for any but the western pond turtle (California Species of Special Concern), bank swallow (*Riparia riparia*; state endangered) and salt marsh common yellowthroat (*Geothlypis trichas sinuosa*; California Species of Special Concern), Thus, none of these species are expected to occur on the Project Site or vicinity.

All three of the federally endangered butterfly species (San Bruno elfin butterfly [*Callophrys mossii bayensis*], Mission blue butterfly [*Plebejus icarioides missionensis*], and callippe silverspot butterfly [*Speyeria callippe callippe*]) are highly specialized in their habitat requirements, and their populations in southern San Francisco and northern San Mateo Counties are restricted to native scrub and grassland communities on San Bruno Mountain and vicinity. In addition, there are no larval food plants for these species on the Project Site and in the off-site stormwater discharge areas (shore of Lake Merced and the willow basin).

The absence of suitable on-site habitat conditions, i.e., ponds, streams, or freshwater marsh, precludes the occurrence of California red-legged frog, western pond turtle, and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) on the Project Site. Off-site, while suitable habitat for red-legged frogs is present along the shore of Lake Merced, protocol-level surveys of suitable habitat in Lake Merced have failed to detect red-legged frogs. The nearest San Francisco garter snake populations ever recorded are in San Mateo County. As discussed on p. V.M.6, the willow forest habitat in the basin is not suitable for either species because of its isolation from known populations, lack of suitable deep (i.e., greater than 2 feet) breeding pools, and short duration of ponding. To be considered essential breeding habitat for red-legged frogs, aquatic features must be able to hold water for a minimum of 20 weeks in all but the driest of years to allow for egg and tadpole development. Given that the basin does not hold water this long, it is not expected to support breeding red-legged frogs. The basin is not expected to support red-legged frogs during the non-breeding season due to its isolation from suitable breeding habitats and/or known breeding populations. Western pond turtles have been observed in East Lake

Merced, but are not expected to occur in the willow basin because of its separation from Lake Merced by Lake Merced Boulevard and seasonal (not permanent) inundation. This species may occur along the southeastern shoreline of Lake Merced, however.

California black rail (*Laterallus jamaicensis coturniculus*), California clapper rail (*Rallus longirostris obsoletus*), and Alameda song sparrow (*Melospiza melodia pusillula*) are associated with tidal salt marsh habitat which is not present in the immediate site vicinity. Bank swallows from the colony at Fort Funston, approximately 1 mile west of the Project Site, are known to forage over Lake Merced, and LSA observed this species at the southern end of the lake during the June 17, 2009, site visit. Bank swallows may occasionally fly over the Project Site during migration, but prolonged foraging is highly unlikely because nearby Lake Merced offers the birds more chances to find food. Salt marsh common yellowthroat is known to breed in the freshwater marsh surrounding Lake Merced; it may be observed foraging on the Project Site, but is highly unlikely to next on the Project Site due to lack of suitable habitat. In summary, no special-status animal species are expected to occur on the Project Site, primarily due to its developed condition and consequent lack of suitable natural habitat.

SENSITIVE HABITATS

No sensitive plant communities, streams, wetlands, or other features potentially subject to CDFG and/or USACE jurisdiction or considered significant under CEQA are present on the Project Site, i.e., the existing Parkmerced residential development. Off site, sensitive wetlands and riparian habitats are present in the willow basin and along the shoreline of Lake Merced, as described on pp. V.M.7-V.M.9.

PROPOSED PROJECT AND STORMWATER MANAGEMENT SYSTEM

The Proposed Project is a long-term mixed-use development program to comprehensively replan and redesign the Parkmerced site. The Proposed Project includes new open space uses, including athletic fields, walking and biking paths, an approximately 2-acre organic farm, and community gardens. At completion, there would be approximately 68 acres of open space, compared to about 75 acres of open space currently at Parkmerced.

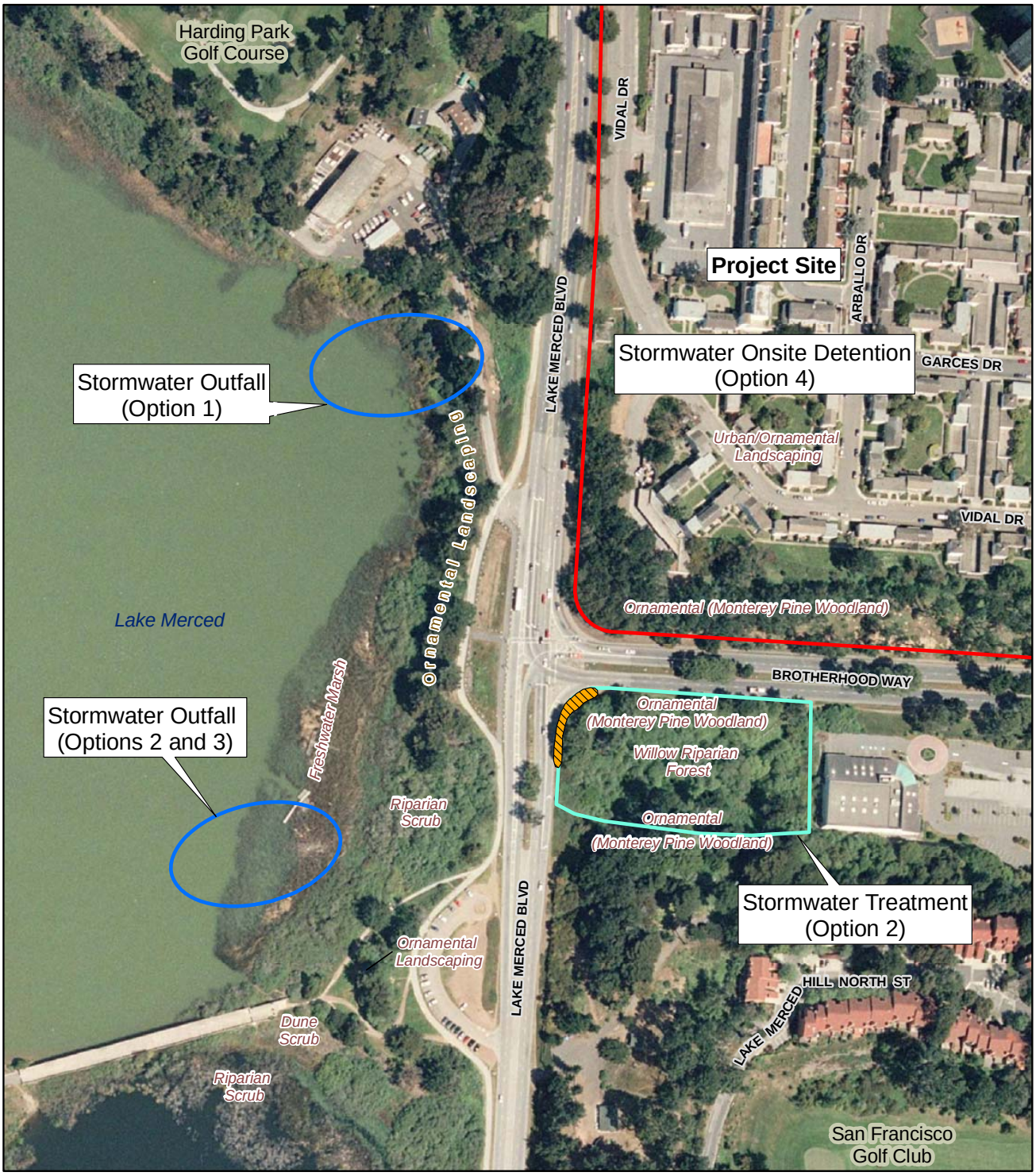
The Proposed Project would include installation of 51 "Windside" vertical axis wind turbines (VATW) along the western perimeter of the site, parallel to Lake Merced Boulevard. The proposed wind turbines would be about 100 feet high and spaced roughly 40 feet apart (measured center to center from each pole). The pole would be around 1 meter (approximately 3 feet) in diameter. Wind turbine blades would be assembled on the top of each pole, and would measure 3 meters wide (approximately 10 feet) by 5 meters tall (approximately 16 feet).

The Proposed Project also includes implementation of a stormwater management system to capture and filter stormwater runoff from buildings, streets, and other non-permeable surfaces

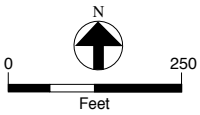
rather than diverting it to the municipal wastewater system. This system would capture and filter runoff through a series of on-site bioswales, streams, ponds, and other natural filtration systems intended to retain, detain, and infiltrate conveyed runoff. Included is a 1.4-million-gallon stormwater collection pond to be constructed in the central oval Common area (Juan Bautista Circle). Water would flow into the collection pond through constructed treatment and filtration mechanisms (streams, bioswales, biogutters). The collection pond would hold water year-round and native aquatic vegetation would be encouraged. Stormwater overflow from collection pond and other flows from the western and northern portions of the Project Site would flow through a riparian corridor[27] consisting of streams, bioswales, biogutters, and smaller ponds into a terminal wetland pond proposed in the southwest corner of the Project Site. Most of this stormwater runoff would infiltrate directly into the Upper Westside groundwater basin that feeds Lake Merced; however, a fraction of the average annual runoff would flow off site from the terminal wetland pond into Lake Merced, after being treated by either an on-site wetland or an underground filtration facility.

As shown in Figure V.M.2: Habitats and Stormwater Discharge Options, there are three options for discharge into Lake Merced. Under Option 1, treated stormwater would be piped from the terminal wetland pond into an existing 30-inch conduit below Lake Merced Boulevard and discharged into Lake Merced near the golf course maintenance facility. Under Option 2, treated stormwater would be piped from the terminal wetland pond into a new conduit below Brotherhood Way, where it would flow into the willow basin, then be discharged into Lake Merced via an existing 48-inch conduit below Lake Merced Boulevard. Under Option 3, treated stormwater would be piped from the terminal wetland pond into a new conduit below Brotherhood Way, then discharged into Lake Merced via the existing 48-inch conduit below Lake Merced Boulevard.[28]

[27] A riparian corridor is the zone between land and a stream, characterized by water-loving plants.
[28] As described in Chapter III, Project Description, p. III.31, the stormwater management system includes two variants. If the SFPUC determines that treated stormwater cannot be discharged directly into Lake Merced, then stormwater runoff from the terminal wetland pond would either be retained on the Project Site in below-ground stormwater drainage wells, or discharged directly into the existing combined sewer/stormwater pipes that flow by gravity to the Oceanside Water Pollution Control Plant.



SOURCE: LSA, Turnstone Consulting



- Project Boundary
- Stormwater Outfall (Approximate Location)
- Willow Basin
- Approximate Former Location of San Francisco Gumplant

PARKMERCED PROJECT

FIGURE V.M.2: HABITATS AND STORMWATER DISCHARGE OPTIONS

IMPACTS

SIGNIFICANCE CRITERIA

The Planning Department Initial Study Checklist form provides a framework of topics to be considered in evaluating potential impacts under CEQA. Implementation of a project could have potentially significant impacts related to biological resources if it were to:

M.a Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

M.b Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

M.c Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

M.d Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

M.e Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

M.f Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The Proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan or other approved conservation plan; therefore, this topic will not be discussed further.

IMPACT EVALUATION

This section analyzes potential impacts to biological resources that may result from implementation of the Proposed Project.

Construction

Impact BI-1: Construction of an outfall for discharge of stormwater runoff into the willow basin could affect the habitat of San Francisco gumplant and other special-status plant species. ***(Less than Significant with Mitigation)*** **(Criterion M.a)**

The Proposed Project's stormwater treatment system includes an option for discharging from the terminal wetland into a new conduit under Brotherhood Way, where it would flow into the willow basin and discharge into Lake Merced via the existing 48 inch conduit under Lake Merced

Boulevard (Stormwater Discharge Option 2). Construction activities in the willow basin could impact an existing population of San Francisco gumplant, which has a CNPS List 1B designation (species considered rare or endangered in California and elsewhere) (see Table V.M.2, pp. V.M.15-V.M.18). This potentially significant impact on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS, would be reduced to a less-than-significant level with implementation of Mitigation Measures M-BI-1a, M-BI-1b, and M-BI-1c. The mitigation measures require conducting a pre-construction survey to identify occurrences of the gumplant, installing fencing to prevent construction workers and equipment from disturbing gumplant locations, and implementing a restoration program. With implementation of these mitigation measures, this impact would be less than significant.

Mitigation Measure M-BI-1a. A pre-construction survey shall be conducted to locate and fence the boundaries of any gumplant populations with a 25-foot buffer zone. To determine if any previously unknown special-status plant or animal species would be affected, a preconstruction survey shall be conducted within the construction area in the spring (May and June) by a qualified biologist authorized by CDFG to conduct such activities.

Mitigation Measure M-BI-1b. The configuration of the construction area shall be modified to avoid any special-status species encountered during the pre-construction survey. No construction activities shall occur within the buffer area. The Project Sponsor shall ensure that the construction area is fenced to the minimum size necessary to avoid impacts from the outfall to the willow basin.

Mitigation Measure M-BI-1c. If it is not possible to avoid the gumplant population during construction, the Project Sponsor shall implement a restoration and mitigation plan in consultation with the San Francisco Planning Department (City) and CDFG. Impacts to the San Francisco gumplant will be mitigated by restoring the affected area and expanding the size of the population by increasing the area and number of individual gumplant plants. The size and density of the affected gumplant population shall be measured prior to construction. This mitigation plan shall describe methods for planting, monitoring, and maintaining the affected area. Performance standards to determine success of the mitigation shall be attained that show that the cover and density of the population affected has been replaced. An annual report shall be submitted to the City and CDFG that documents maintenance and monitoring methods and results. Such monitoring and maintenance shall continue for at least 5 years beyond the implementation of the mitigation plan.

Impact BI-2: Construction of an outfall for stormwater runoff into Lake Merced could affect habitats of special-status animal species. ***(Less than Significant with Mitigation)***

If discharge of treated stormwater to Lake Merced is implemented, construction of a new outfall or restoration of an existing outfall into Lake Merced could impact the habitat of the salt marsh common yellowthroat or western pond turtle (both California Species of Special Concern). Both breed and/or forage in aquatic habitat along the Lake Merced shoreline.

Outfall construction or restoration at the shoreline of Lake Merced would also cause increased turbidity along the shoreline within 50 feet of the outfall. This disturbance would affect less than 1 acre and would be a short-term impact. Nevertheless, because of the sensitive species that may be present, the impact could be significant.

This potentially significant impact on a species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS, would be reduced to a less-than-significant level with implementation of Mitigation Measures M-BI-2a through M-BI-2c. Mitigation Measures M-BI-2a and M-BI-2b require conducting a pre-construction survey to identify nesting activity, and if necessary, creating a buffer area around the nest(s), and monitoring the outfall construction area so that western pond turtles can be captured and relocated. Mitigation Measure M-BI-2c would provide a plan for preventing erosion, controlling sediment, preventing pollution from spills, and restoring the construction area. With implementation of these mitigation measures, this impact would be less than significant.

Mitigation Measure M-BI-2a. If outfall repair or construction activities occur along the Lake Merced shoreline during the breeding season of the common yellowthroat (March-August), a qualified ornithologist authorized by CDFG to conduct such activities shall conduct a preconstruction survey of the work area to determine if any birds are nesting in or in the vicinity of the outfall. The preconstruction survey shall be conducted within 15 days prior to the start of work from March through May (since there is higher potential for birds to initiate nesting during this period), and within 30 days prior to the start of work from June through August. If active nests are found in the work area, a buffer of 50 feet shall be established between the work area and the nest(s). No work will be allowed within the buffer until the young have successfully fledged. The size of the nest buffer can be reduced as a result of consultation with the CDFG. Such a reduction shall be dependent on a relatively low frequency and intensity of disturbance and the tolerance of the nesting birds to human disturbance.

Mitigation Measure M-BI-2b. Stormwater outfall construction activities at the Lake Merced outfall site(s) shall be monitored by a biologist to ensure that no western pond turtles are present and subjected to harm. If turtles are present, the biologist shall capture and relocate them or ensure that they are moved to an area outside of the construction zone and away from harm.

Identification, capture and relocation of turtles shall be done by a qualified biologist authorized by CDFG to conduct such activities.

Mitigation Measure M-BI-2c. The SWPPP is required and shall include design details and construction specifications for all site drainage control and other water quality control strategies. It shall also detail the implementation schedule, methods and locations of erosion and water quality control features. The California Stormwater Quality Association Construction Handbook[29] provides guidance for selecting and implementing Best Management Practices (BMPs) that would eliminate or reduce the discharge of pollutants from construction sites to waters of the state. Three levels of BMPs are considered for each potential pollutant: source control, management control, and treatment control. BMPS which could be implemented as part of the SWPPP include: hydroseeding, straw mulch, temporary stream bank stabilization, silt fences, sediment traps, temporary stream crossings, stockpile management, and spill prevention and control.

Impact BI-3: Construction of a new stormwater outfall, or restoration of an existing one, would affect freshwater marsh and other riparian habitat along the shore of Lake Merced and in the willow basin. ***(Less than Significant with Mitigation)*** **(Criterion M.b)**

To repair the existing stormwater outfall(s) at the shoreline of Lake Merced, or to install a new one(s), marsh and riparian vegetation would be removed from a construction zone that would be approximately 20 to 40 feet long and a trench as wide as 6 feet would be excavated. Excavation might entail the removal of willow and/or wax myrtle trees within the proposed trench alignment. Prior to issuance of the final grading plans, the Project Sponsor is required to apply for coverage under the NPDES General Construction Activity Permit from the State Water Quality Control Board by filing a Notice of Intent (NOI), and, as part of the permit and monitoring process, prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that will include the Lake Merced and Willow Basin outfall sites. This potentially significant impact on riparian habitat, or another sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS, would be reduced to a less-than-significant level with implementation of Mitigation Measures M-BI-2c and M-BI-3a and M-BI-3b. These mitigation measures would involve minimizing the construction area, avoiding large willow and wax myrtle trees, and restoring the affected area. With implementation of these mitigation measures, this impact would be less than significant.

Mitigation Measure M-BI-3a. Vegetation removal activities in wetland and riparian habitiats in the willow basin and along the shoreline of Lake Merced shall be restricted to as small an area as

[29] California Stormwater Quality Association, 2003, *Stormwater Best Management Practice Handbook.* Menlo Park, California,

possible. Construction areas shall be no longer than 40 feet and shall be shorter where possible. In addition, construction shall avoid large willow and wax myrtle trees.

Mitigation Measure M-BI-3b. The vegetation of any affected riparian or wetland area shall be restored to the same or to a more biologically valuable condition. This shall entail planting of vegetation, if it is not expected to return on its own, and removal of non-native species. A mitigation plan that describes site preparation, planting, performance standards, maintenance (including weed control), and monitoring methods shall be developed for impacts to marsh and riparian vegetation. The performance standards shall include a mitigation ratio of 1:1, standards for cover, plant composition of the restored area, and erosion, at the end of 5 years. Remedial activities shall be outlined in the plan to address any of the restoration areas that are not attaining performance standards at the end of 5 years. The mitigation area shall be monitored and maintained for at least 5 years. Monitoring and maintenance activities shall be summarized in an annual report to be prepared for each of the 5 years the area is monitored. This mitigation plan shall be reviewed and approved by the City prior to the approval of the final map for the project.

Impact BI-4: Removing trees and shrubs could remove migratory bird habitat and impede the use of nesting (nursery) sites. ***(Less than Significant with Mitigation)*** **(Criterion M.d)**

The numerous trees and shrubs on the Project Site provide suitable stopover habitat for migratory songbirds such as western tanager, yellow warbler, Pacific-slope flycatcher, and numerous other species. Gradually, over the 20-year buildout period for the Proposed Project, most of the existing on-site vegetation would be removed in phases to make way for new buildings and landscaping. As a result, there would be a number of short-term losses of migratory stopover habitat. However, new landscaping, which would include native plant species, would replace the existing ornamental landscaping and create new habitat. The new landscaping would include numerous bioswales, streams, the riparian corridor, and new trees. Thus, the impact to the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors would be short term, and this impact would be considered less than significant.

Trees and shrubs throughout the site also provide nesting habitat for urban-adapted bird species. Vegetation removal and/or building demolition during the breeding season (approximately March through August) could remove trees, shrubs, and/or buildings that support active nests. All native birds and their nests are protected by the federal Migratory Bird Treaty Act and California Fish and Game Code. This potentially significant impact would be reduced to a less-than-significant level by implementation of Mitigation Measure M-BI-4. This measure requires conducting breeding bird surveys in construction areas and for creating buffers around confirmed nesting sites. With implementation of these mitigation measures, this impact would be less than significant.

Mitigation Measure M-BI-4. Vegetation removal activities for the Proposed Project and stormwater treatment option areas and building demolitions shall be conducted during the non-breeding season (i.e., September through February)to avoid impact to nesting birds or preconstruction surveys shall be conducted for work scheduled during the breeding season (March through August). Preconstruction surveys shall be conducted by a qualified ornithologist, authorized by CDFG to conduct such activities, to determine if any birds are nesting in or in the vicinity of vegetation or buildings to be removed. The preconstruction survey shall be conducted within 15 days prior to the start of work from March through May (since there is higher potential for birds to initiate nesting during this period), and within 30 days prior to the start of work from June through August. If active songbird nests are found in the work area, a buffer of 50 feet between the nest and work area shall be established. If active raptor nests are found in the work area, a buffer of 200 feet shall be established between the nest and the work area. No work will be allowed with the buffer(s) until the young have successfully fledged. In some instances, the size of the nest buffer can be reduced and its size shall therefore be determined by the biologist in consultation with the CDFG, and shall be based to a large extent on the nesting species, its sensitivity to disturbance, and the type and frequency of disturbance.

Impact BI-5: The Proposed Project could have an adverse effect on wetlands as defined by Section 404 of the Clean Water Act. (*Less than Significant with Mitigation)* (Criterion M.c)

To repair the existing stormwater outfall(s) at the shoreline of Lake Merced or to install a new one(s), marsh and riparian vegetation would be removed from a construction zone that would be approximately 20 to 40 feet long and a trench as wide as 6 feet would be excavated. This impact would be short term and would be mitigated as discussed in Impact BI-3 above. In addition, the Proposed Project would restore historic levels of stormwater runoff in the willow basin and would, by restoring the discharge of stormwater runoff to Lake Merced, contribute to the restoration of water levels in Lake Merced. With implementation of Mitigation Measures M-BI-2c, M-BI-3a, and M-BI-3b, as described in Impact BI-3, which require a plan for preventing erosion, controlling sediment, preventing pollution from spills, and restoring the construction area, and which would involve minimizing the construction area, avoiding large willow and wax myrtle trees, and restoring the affected area, this impact would be less than significant. A permit under Section 404 of the Clean Water Act may be required to implement these discharges,

Impact BI-6: The Proposed Project would not conflict with local policies or ordinances protecting biological resources. *(Less than significant)* (Criterion M.e)

The Project Site contains over 1,500 trees. As defined by the City of San Francisco's Urban Forestry Ordinance (see pp. V.M.12-V.M.13), there are 298 significant trees, 189 street trees, and

over 1,000 interior trees on the Project Site.[30] There are no designated landmark trees. Many of the trees are in poor condition, and such trees are regularly assessed for removal and replacement in an existing, ongoing maintenance program for the site. The maintenance program includes seasonal restrictions and nest avoidance in compliance with the CDFG and the MBTA.

Most of the remaining trees on the Project Site, excluding the majority of those along the southern slope adjacent to Brotherhood Way, would need to be removed or relocated as part of the Proposed Project. A phased tree removal plan is shown in Figure III.23: Proposed Tree Removal Plan, in Chapter III, Project Description, p. III.63.

Trees would be assessed for condition and suitability for possible relocation when they have to be removed. A tree replacement plan would be developed as part of the landscape plan included in the Proposed Project. As prescribed in the *Sustainability Plan*, replacement trees would mostly be native species. Tree replacement as part of the Proposed Project and compliance with the San Francisco Urban Forestry Ordinance, enacted to ensure the protection of trees within and adjacent to public areas, would reduce this impact to a less-than-significant level. No mitigation is required.

Operations

Impact BI-7: Maintenance of the proposed stormwater treatment system (bioswales, constructed stream, wetlands, and ponds) could affect special-status animal species. *(Less than Significant with Mitigation)* (Criterion M.a)

The proposed on-site stormwater treatment bioswales, stream, wetlands, and ponds would be planted with native wetland and riparian vegetation that would support native wildlife, including special-status species such as western pond turtle and protected nesting birds. Although this would be considered as a beneficial impact and an enhancement of habitat values, periodic vegetation or sediment removal for maintenance of the treatment system could adversely impact those species. Maintenance of the treatment system would include mosquito abatement practices. Stormwater retention facilities would be designed to prevent conditions that would sustain mosquitos. Edge treatments and vegetation would be selected to control mosquitos. Fish that eat mosquito larvae would be stocked in the permanent ponds. Water retention and vegetation removal would be managed to control mosquitos.

The potentially significant impact of maintenance would be reduced to a less-than-significant level with implementation of Mitigation Measures M-BI-7a and M-BI-7b. These mitigation measures require conducting a pre-maintenance survey of nesting activity and, if necessary, establishing an appropriate buffer area, and conducting a pre-maintenance survey to determine if western pond turtles or other special-status amphibians or reptiles are present and, if necessary,

[30] HortScience, Inc., *Tree Survey, Parkmerced, San Francisco, CA*, 2007.

capturing and relocating them. With implementation of this mitigation measure, this impact would be less than significant.

Mitigation Measure M-BI-7a. If maintenance of the stormwater treatment system occurs during the nesting season (March-August), a qualified ornithologist, authorized by CDFG to conduct such activities, shall conduct a survey of the work area to determine if any birds are nesting in the work area or in the vicinity. The survey shall be conducted within 15 days prior to the start of maintenance work from March through May (since there is higher potential for birds to initiate nesting during this period), and within 30 days prior to the start of work from June through August. If active songbird nests are found in the work area, a buffer of 50 feet between the nest and the work area shall be established. If active raptor nests are found in the work area, a buffer of 200 feet shall be established between the nest and the work area. No work will be allowed within the buffer until the young have successfully fledged. In some instances, the size of the buffer can be reduced and its size shall therefore be determined by the biologist in consultation with the CDFG, and shall be based to a large extent on the nesting species, its sensitivity to disturbance, and the type and frequency of disturbance.

Mitigation Measure M-BI-7b. The on-site stormwater features shall be monitored by a qualified biologist, authorized by CDFG to conduct such activities, during maintenance activities to ensure that no western pond turtles or other special-status amphibians or reptiles are present and subject to harm. If turtles or other special-status reptiles and amphibians are present, the biologist shall capture and relocate them, or ensure that they are moved to an area outside of the construction zone and away from harm.

Impact BI-8: Operation of the 51 proposed wind turbines on the western periphery of the Project Site could have a substantial adverse effect on special-status species, interfere substantially with bird or bat movement and migration corridors, and interfere substantially with raptor nest sites. ***(Significant and Unavoidable)*** **(Criterion M.d)**

Protected passerines (perching birds) are the most common group of birds (over 80 percent of mortalities) killed at new wind plants.[31] Bank swallows (California endangered) are known to forage over Lake Merced and salt marsh common yellowthroat (California species of concern) are known to nest and forage along the Lake Merced shoreline. Although no special-status bat species have been recorded in the Project Site vicinity, several common bat species are known to occur in San Francisco, and Lake Merced represents a foraging area for bats. Bats are long-lived mammals with few predators, low reproductive rates, and slow population growth. As such, bat experts have expressed concern that sustained, high fatality rates from collisions with wind

[31] West Inc. *Synthesis and Comparison of Baseline Avian and Bat Use, Raptor Nesting and Mortality Information from Proposed and Existing Wind Developments*. Prepared for Bonneville Power Administration, Portland, OR, 2002.

turbines could have potentially significant impacts to bat populations of even common species.[32] Due to the proximity of the proposed turbines to Lake Merced, special-status bird and common bat species could be impacted by collisions.

Based on a preliminary assessment in accordance with California Energy Commission and CDFG guidelines,[33] the wind turbine site meets two of the four criteria for a high or uncertain potential for wildlife (for both birds and bats) impacts: 1) known avian migration stopover destinations such as water bodies (e.g., Lake Merced) within or immediately adjacent to the project, and 2) special-status species occurring on or adjacent to a proposed site. Bi-weekly pre-permitting surveys of a turbine site for at least two years before project approval may be necessary in such cases to determine the level of impacts because of considerable seasonal and annual variation in bird populations.[34] Pre-permitting surveys are intended to estimate the numbers of individuals by species that could potentially be killed each year by turbine operations. Studies would include bird use counts by species in the turbine propeller zone of at least one-half hour every two weeks. Additional survey methods may be necessary based on site specific factors. The pre-permitting studies would be conducted in close consultation with CDFG to ensure methodologies are adequate to address their concerns. CDFG would also be consulted to determine the need for permits or other approvals to comply with the California Fish and Game Code and State Endangered Species Act.

In the absence of these data from pre-permitting studies, it would not be possible to design a mitigation program that could be demonstrated to reduce impacts to less than significant levels. Mitigation Measures M-BI-8a through M-BI-8e, which requires bird surveys, a monitoring program, management or compensation strategies, and an application for an incidental take permit, may reduce the impact, but impacts would remain potentially significant and unavoidable.

Mitigation Measure M-BI-8a. To obtain baseline information on existing bird use of the proposed wind turbine alignment along Lake Merced Boulevard, the Project Sponsor shall retain a qualified wildlife biologist, authorized by CDFG to conduct such activities, to conduct bi-weekly bird use counts (BUCs) of the area for two years using methods described in

[32] California Energy Commission. 2008, *Frequently Asked Questions About California Guidelines for Reducing Bird and Bat Impacts from Wind Development,* http://www.energy.ca.gov/windguidelines/faq.html, accessed March 2, 2010.
[33] California Energy Commission and California Department of Fish and Game. 2007. California Guidelines for Reducing Impacts to Bird and Bats from Wind Energy Development. Commission Final Report. California Energy Commission, Renewables Committee, and Energy Facilities Siting Division, and California Department of Fish and Game, Resources Management and Policy Division. CEC-700-2007-008-CMF. (Hereinafter referred to as CEC/CDFG 2007.)
[34] CEC/CDFG 2007.

Anderson[35] and CEC/CDFG.[36] Three point count stations spaced approximately 500 feet apart in the existing median between Lake Merced Boulevard and Vidal Drive would likely be sufficient to detect all birds using and/or flying through the area, although the final study design shall be subject to review and approval by the CDFG. Methods other than BUCs may be used if improved methods for documenting bird use at proposed wind turbine sites are developed in the interim period between the certification of this EIR and the initiation of the wind turbine program.

Obtaining baseline information on existing bat use of the wind turbine alignment is complicated by the fact that bats are much more difficult to detect than birds and available monitoring methods (i.e., acoustic monitoring of echolocation calls) may not be feasible in a dense urban environment. As such, the Project Sponsor shall retain a qualified bat expert to conduct a one-day habitat assessment of the proposed wind turbine alignment. Based on the results of the assessment, the bat expert shall provide recommendations on the appropriate level of monitoring required to establish baseline patterns of seasonal bat activity along the proposed wind turbine alignment. If the bat expert believes that focused bat surveys are not necessary or that the proposed wind turbines do not pose a significant risk to local bat populations, he/she shall explain his/her opinions following standard scientific report format.

Similarly, the Project Sponsor shall retain a biologist experienced with nocturnal bird survey methods (e.g., radar, acoustic monitoring, visual surveys using night vision equipment) to conduct an assessment of the proposed wind turbine alignment and assess the feasibility of conducting nocturnal surveys for migrating birds. Given substantial uncertainty and variation over the optimal protocols for detecting nocturnal migrating birds and the viability of such protocols to predict collision risk,[37] it is important to identify species of primary concern and develop site-specific questions that any nocturnal studies should address prior to implementing a nocturnal monitoring program. The biologist retained to conduct the nocturnal bird survey feasibility assessment shall provide such information in their report.

Data gathered during the pre-permitting surveys shall be used to develop baseline estimates of bird and bat fatality rates (expressed as fatalities/megawatt/year) from the proposed wind turbines. Given the lack of scientific studies on wind turbine-wildlife interactions in urban areas and vertical-axis wind turbine (VAWT) impacts on wildlife, it will be difficult if not impossible to apply known fatality rates from other studies to the project site (although such information may become available by the time the wind turbine program is implemented). As such, baseline

[35] Anderson, R.L., M. Morrison, K.Sinclair, and D.Strickland. 1999. *Studying Wind Energy/Bird Interactions: A Guidance Document.* National Wind Coordinating Committee, Washington, D.C. www.nrel.gov/docs/fy00osti/27136.pdf, accessed March 8, 2010.
[36] CEC/CDFG 2007.
[37] Kunz, T. H., E. B. Arnett, B. M. Cooper, W. P. Erikson, R. P. Larkin, T. Mabee, M. L. Morrison, M. D. Strickland, and J. M. Szewczak. 2007. Assessing Impacts of Wind-Energy Development on Nocturnally Active Birds and Bats: A Guidance Document. Journal of Wildlife Management. 71 (8): 2449-2486.

fatality estimates shall be developed with input from scientists experienced with statistical analysis of wind turbine-wildlife interactions.

Mitigation Measure M-BI-8b. The Project Sponsor shall implement a scientifically defensible operations monitoring program to estimate bird and bat fatality rates from the new wind turbines. Operations monitoring typically consists of counts of bird and bat carcasses in the vicinity of turbines and ongoing bird use data collection (i.e., continued BUCs) using the most current methods prescribed by the California Energy Commission and CDFG. Given the lack of published information on impacts to birds and bats from urban wind turbines and the site's proximity to a major wildlife habitat feature (i.e., Lake Merced), and the Pacific flyway a minimum of two years of post-construction monitoring shall be conducted. The operations monitoring program shall be developed with input from the CDFG, USFWS, and scientists experienced in the analysis of wind turbine-wildlife interactions.

Mitigation Measure M-BI-8c. If results of operations monitoring indicate that bird and/or bat fatality rates exceed those predicted during the pre-permitting phase, the City shall require implementation of some or all of the following management strategies or compensation measures:

1. Seasonal shutdown (e.g., spring or fall migratory period, depending on results of surveys) of a particular turbine or turbines that may be found to be contributing a disproportionate amount to bird and/or bat fatalities.

2. Contribution of funds towards the management, restoration, enhancement, and/or protection of the local habitats used by species affected by wind turbines (e.g., lands managed by San Francisco Recreation and Park Natural Areas Program or the National Park Service Golden Gate National Recreation Area).

3. Contribution of funds towards research programs aimed at wind turbine-wildlife interactions, nocturnal bird study methods, and/or collision risk.

Mitigation Measure M-BI-8d. The following measures shall be incorporated into wind turbine design to minimize the likelihood of bird strikes:

1. FAA-mandated obstruction lighting at the turbine tops shall consist of red or white strobe-type lights rather than steady-burning lights, as several studies have demonstrated reduced mortality of night-migrating birds at facilities using strobe-type lights.[38]

2. No guy wires shall be used to support the wind turbines, as they are a known hazard to birds.[39]

[38] Longcore, T., C. Rich, and S. A. Gauthreaux, Jr. 2008. Height, guy wires, and steady-burning lights increase hazard of communication towers to nocturnal migrants: a review and meta-analysis. Auk 125(2): 485–492. (Hereinafter referred to as Longcore 2008).
[39] Longcore 2008.

3. To prevent bird collisions with overhead power lines, turbines shall be powered via underground electrical connections.

4. Bare soil or manicured grass around turbine bases may provide habitat for small mammals, resulting in increased prey availability for raptors and putting them at increased risk of collision. To discourage small mammals from burrowing under or near turbine bases, gravel or artificial turf shall be placed at least 5 feet around each turbine foundation.

Additional design elements proven to minimize bird and/or bat strikes shall be implemented as information on such measures becomes available in the scientific literature and/or agency guidance documents.

Mitigation Measure M-BI-8e. As mentioned above, the proposed wind turbines may result in mortality of bank swallows, which is state-listed as threatened under the California Endangered Species Act (CESA) or other species of concern. Given the current uncertainty over the extent and magnitude of potential take of bank swallows or other species of concern, the Project Sponsor shall apply to the CDFG for an incidental take permit pursuant to Section 2081 of CESA and implement all CDFG conditions of that permit, which may include the some or all of the mitigation measures described above. The permit application will comply with the applicable requirements of Section 738.2 of CESA, as it may be amended.

Impact BI-9: Construction of new building towers could adversely impact bird or bat movement and migration. ***(Less than Significant with Mitigation)*** **(Criterion M.d)**

The eleven new 11- to 14-story towers (115 to 145 feet tall) could affect bird migration and local movement if birds are injured or killed by colliding with the towers. Each year, approximately 100 million to 1 billion birds in the continental U.S. die from collisions with glass panels or windows. In large cities, resident and migratory birds have been killed by striking reflective and plate glass windows of high-rise buildings during daytime hours. Large numbers of nocturnal migrants have been documented as colliding with structures such as communication towers and well-lit high-rise buildings, particularly during inclement weather. Although this problem has been well-studied in Chicago, Toronto, and New York City, no such studies have been conducted on the West Coast. Thus, it is unknown how the new residential towers would affect migrating and resident birds. This potentially significant impact would be reduced to a less-than-significant level by implementation of Mitigation Measure M-BI-9 (below). This measure requires incorporating design features that make it easier for birds to identify buildings, and avoiding the use of clear or reflective glass. With implementation of this mitigation measure, this impact would be less than significant.

Mitigation Measure M-BI-9. The Project Sponsor shall ensure that the new residential towers should follow bird-safe design practices[40, 41, 42] as much as possible to minimize the potential for increased bird-window collisions. Building facades should create "visual noise" via cladding or other design features that make it easier for birds to identify buildings as such and not mistake windows for open sky or trees. Windows should not be comprised of clear or reflective glass, which is coated with a reflective film to control solar heat gain. Instead, windows should incorporate different glass types such as UV-A or fritted glass. Windows should also incorporate UV-absorbing and UV-reflecting stripe and grid patterns[43] in locations with the highest potential for bird-window collisions (e.g., lower levels near trees).

Impact BI-10: Changes in duration and depth of inundation in the willow basin from stormwater runoff could impact riparian vegetation. ***(Less than Significant with Mitigation)*** **(Criterion M.b)**

The willow basin is currently inundated during the winter to a depth of about 1 foot, and the discharge of additional stormwater from the Proposed Project to the basin in the winter is unlikely to affect species that are adapted to withstand winter inundation (arroyo willow, yellow willow, and creek dogwood). Increased duration of inundation could benefit these species by favoring them over invasive non-native species such as Cape ivy. However, the large specimens of wax myrtle growing in the bottom of the willow basin may not be able to withstand an increase in inundation depth or duration. Although wax myrtle is not a special-status plant species, these trees provide a locally unique component of the sensitive riparian habitat in the willow basin and an increase in inundation depth and duration may adversely affect them. Implementation of Mitigation Measure M-BI-10 would reduce this potentially significant impact to a less-than-significant level. Under Mitigation Measure M-BI-10, a hydrological study of the willow basin would be conducted to determine whether the increase in storm runoff would affect the duration and depth of ponding, and decreasing the depth and duration of ponding based on the findings of the hydrology study. With implementation of this mitigation measure, this impact would be less than significant.

Mitigation Measure M-BI-10. A hydrological study shall be conducted on the willow basin to determine whether the additional input of storm runoff will affect the duration and depth of ponding. If the level of water will rise to within 3 feet of the base of any wax myrtle and remain at that level for more than 4 days, then the outlet of the willow basin shall be modified to prevent such rise of water level and duration. If the water level already exhibits these characteristics, then

[40] Doeker, R. 2005. Bird-safe Design Practices. Online tutorial: http://www.birdsandbuildings.org/docs/birdsafedesign.pdf.
[41] City of Toronto Green Development Standard. 2007. Bird-Friendly Development Guidelines. City Planning, Toronto, Ontario, Canada.
[42] New York City (NYC) Audubon Society. 2007. Bird Safe Building Guidelines. New York, NY. http://www.birdsandbuildings.org/docs/BirdSafeBuildingGuidelines.pdf.
[43] Klem, D., Jr. 2009. Preventing bird-window collisions. Wilson Journal of Ornithology 121(2): 314–321.

no change shall be made to ensure that the existing depth and duration of ponding in the willow basin remains as is.

Impact BI-11: The Proposed Project would could result in substantial adverse cumulative effects to biological resources. ***(Less than Significant)***

Several foreseeable development proposals are under consideration and are directly adjacent to the Project Site. The approved project at 800 Brotherhood Way calls for the construction of 60 single-family homes and 61 two-unit buildings on the 7.7-acre site between the south edge of the Project Site and the open space on the north side of Brotherhood Way. The *2007-2020 San Francisco State University Campus Master Plan* proposes physical changes and improvements to the campus, including construction of new buildings that would add approximately 972,400 square feet and 660 net new dwelling units to the campus. Anticipated building would range in height up to 100 feet tall. A proposed project at 77-111 Cambon Drive involves the demolition of two existing one-story commercial buildings and the construction of a mixed-use project ranging in height from two to four stories on the triangular site adjacent to the east boundary of the Project Site.

The Proposed Project combined with these other foreseeable development projects would result in increased population and development. However, this increase in development and population would not create greater biological impacts than those already created by the Proposed Project. Thus, the Proposed Project would not have cumulatively considerable impacts on biological resources in the project area.

N. GEOLOGY AND SOILS

This section describes the geologic and soils setting, and the potential impacts of the geology and soils at the Project Site on the Proposed Project.

A geotechnical report was prepared for the proposed Parkmerced project by a California-licensed geotechnical engineer.[1] The investigation included:

- Researching and reviewing available geologic information in the site vicinity;
- Performing a geologic reconnaissance of the property to document current site conditions;
- Reviewing available boring logs from the site and its vicinity; and
- Preparing geologic cross-sections.

The investigation evaluated geologic hazards such as fault rupture, seismically induced ground deformations, erosion, landsliding, and subsidence. The site description and impact evaluations below are drawn from the geotechnical report.

SETTING

The Project Site is within the California Coast Ranges Geomorphic Province, characterized by a series of northwest-trending ridges and valleys. Bedrock beneath San Francisco consists of sedimentary and volcanic rocks of Jurassic and Cretaceous age (approximately 65 to 213 million years old) Franciscan Complex.[2] Before the overlying sediments were deposited, this formation was severely deformed, broken by faults, and eroded, creating considerable topographic differentiation. This bedrock outcrops on the hills on the west side of San Francisco Bay. Five formations of sediments overlie the Franciscan formation. The uppermost formation in and around the Bay is Young Bay Mud, deposited approximately 10,000 years ago. In the western portion of San Francisco, Holocene and Pleistocene age (1.8 million years old to present) Dune Sand and alluvium comprise the uppermost layer (see Figure V.N.1: Local Geology Map).

The Project Site is in the southwest portion of San Francisco, approximately 0.75 mile from the east shore of Lake Merced. The southwest corner of San Francisco, from Golden Gate Park south to the City limit, is roughly a broad plain that slopes down from a maximum elevation of 938 feet.

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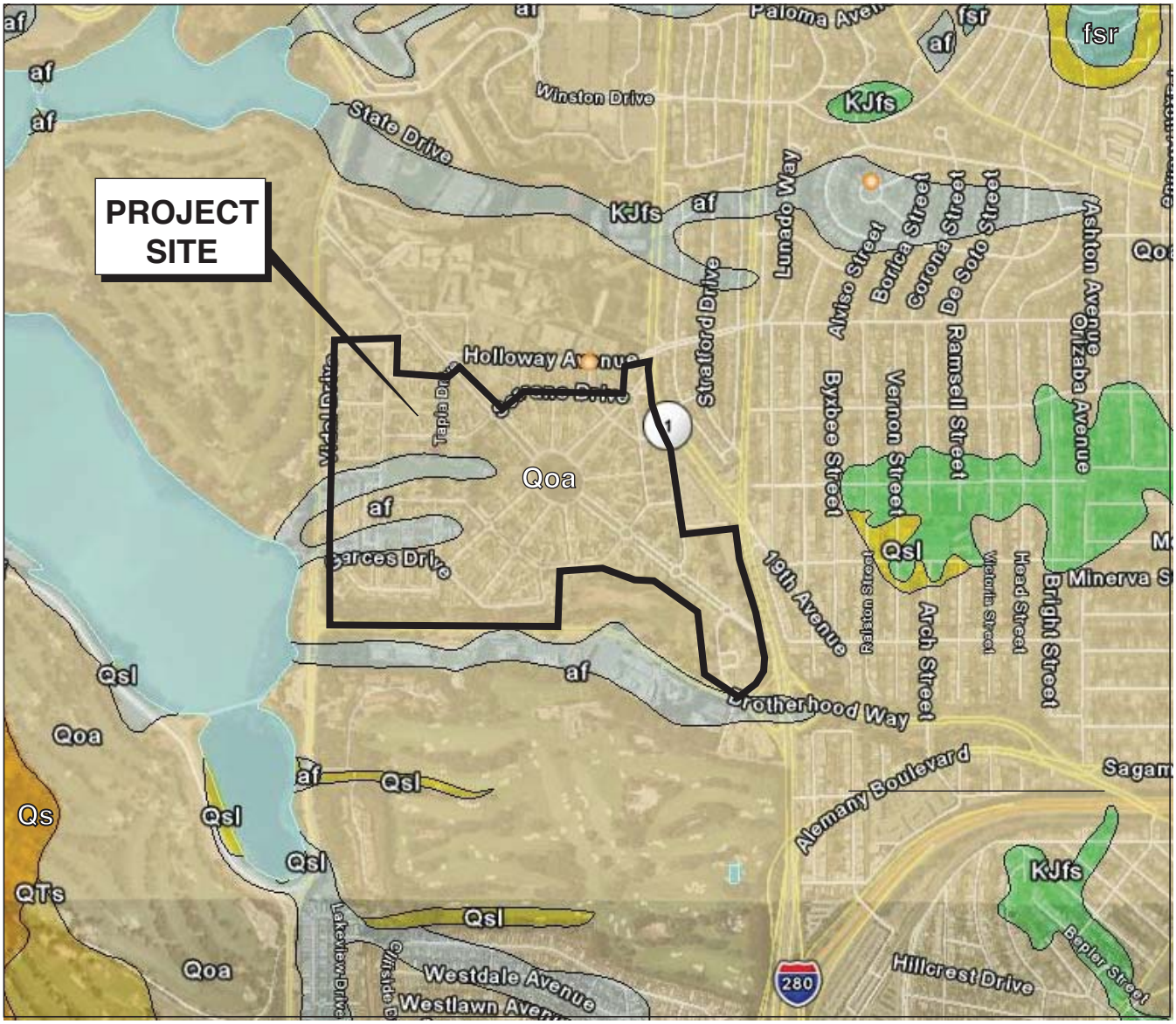
[1] Treadwell & Rollo, 2008. *Environmental Impact Report (EIR), Geologic, Geotechnical and Seismic Findings, Parkmerced Development, San Francisco, California*, May 9, 2008 (hereinafter referred to as "*Geologic, Geotechnical, and Seismic Findings")*. A copy of this report is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2008.0021E.

[2] The Franciscan Complex consists of a shale matrix with inclusions of greywacke sandstones, serpentinite, silicious schist, greenstone, and blueschist, all of them faulted and mixed in a seemingly chaotic manner. It forms the major component of the Pacific Coast Ranges of California.



SOURCE: Treadwell & Rollo, Turnstone Consulting

EXPLANATION

af	**Artificial Fill**
Qs	**Beach and dune sand (Quaternary)**
Qsl	**Hillslope Deposits (Quaternary)**
Qoa	**Alluvium (early (Pleistocene) (Qc-Colma Formation, Qd-Dune sand)**
QTs	**Sediments (early Pleistocene and (or) Pliocene)**
fsr	**Franciscan Complex melange (Eocene, Paleocene, and (or) Late Cretaceous)**
KJfs	**Franciscan Complex sedimentary rocks (Early Cretaceous and (or) Late Jurassic)**

Geologic contact
dashed where approximate
and dotted where concealed

N
0 2000
Feet

PARKMERCED PROJECT

FIGURE V.N.1: LOCAL GEOLOGY MAP

The Parkmerced Project Site is located on a terrace above Lake Merced. It is generally flat, sloping gradually down from east to west from about 200 feet above mean sea level near its southeast corner to 80 feet above mean sea level near its southwest corner (over a horizontal distance of about 3,600 feet). From north to south, the site is relatively flat, except at its southern edge where it drops off steeply toward Brotherhood Way. This slope, which runs along the southern edge of the Project Site to Brotherhood Way, is the most notable topographical feature of the property.

The Project Site is underlain primarily by native medium dense to dense sands of either the Colma Formation[3] and/or deposits of wind-blown Dune Sand. Dune Sand deposits are from 10 to 60 feet thick. The Colma Formation is likely 100 feet thick across the Project Site. Depth to bedrock may be on the order of 100 to 330 feet below ground surface; the depth increases to the west.

There are several areas of deep fill on the Project Site. On the western and southwestern part of the site, there are two former lobes of Lake Merced. An historic stream channel that once fed Lake Merced extends along the south side of the site. Fill in these old channels is up to 50 feet thick. The fill consists of loose to medium dense, poorly graded, fine-grained sand with varying amounts of silt and some debris.

There is an old underground sewer tunnel on the western portion of the site mostly along Arballo Drive and partially beneath existing structures. The sewer tunnel is still in use, although it does not serve Parkmerced. The tunnel was likely installed using open cut methods; therefore, there is up to 80 feet of fill above the tunnel.

The Project Site is underlain by the Westside Groundwater Basin, a major groundwater basin that stretches from Golden Gate Park to San Mateo County. The groundwater level in the Westside Basin aquifer historically has been affected by pumping and use of the groundwater by various water agencies on the Peninsula, as well as by City departments using the groundwater for irrigation. Recent monitoring has shown higher groundwater levels in some portions of the Westside Basin, although not in the Lake Merced area.[4] The depth to groundwater ranges from 20 to 50 feet north of the site, about 80 feet near the center of the Project Site, and 15 to 40 feet at the southernmost portion of the Project Site. Perched groundwater[5] may also be present at a depth of 20 feet in some areas of the Project Site.

[3] The Colma Formation consists of fine-grained sand, silty sand, and inter-fingered clay layers.
[4] PBS&J, *Final Water Supply Assessment for the Proposed Parkmerced Project*, November 2009, Appendix A, pp. 17-20. A copy of this report is provided in Appendix D to this EIR.
[5] Perched groundwater is an occurrence of groundwater that is separated from the regional aquifer by an impermeable layer of rock or sediment.

SEISMIC HAZARDS

Regional Seismicity and Faulting

The Project Site is located within Seismic Zone 4, high hazard, as defined by the California Building Code (CBC). The Project Site, like all of the San Francisco Bay Area, is situated in a seismically active region near the boundary between two major tectonic plates, the Pacific Plate to the southwest and the North American Plate to the northeast. The San Andreas Fault Zone is a complex of active faults along the boundary. Movement of the plates relative to one another results in the accumulation of strain along the faults, which is released during earthquakes.

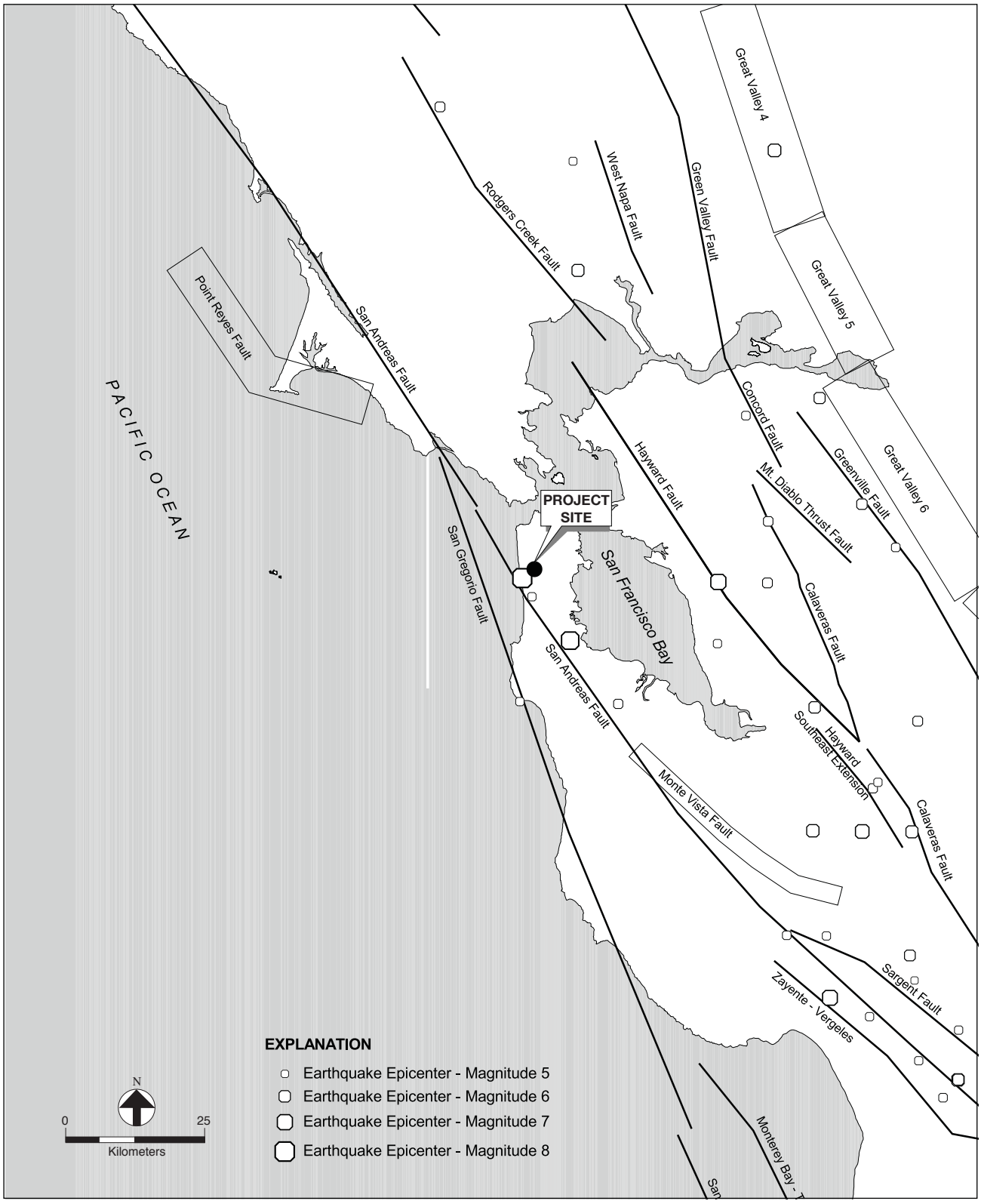
Regional faults are shown in Figure V.N.2: Map of Major Faults and Earthquake Epicenters in the San Francisco Bay Area. The faults nearest the Parkmerced Project Site are the San Andreas fault (1906 rupture), located 1.25 miles to the west; the San Gregorio fault, located about 6 miles to the west; the San Andreas fault (North Coast South segment), located 7 miles to the northwest; the Hayward fault, located about 17 miles to the northeast; the Monte Vista-Shannon fault, located 24 miles to the southeast; the Rodgers Creek fault, located 26 miles to the northeast; and the Calaveras fault, located 27 miles to the east.

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a moment magnitude (M) scale because it provides a more accurate measurement of the size of major earthquakes. For earthquakes of less than M 7.0, the moment and Richter magnitude scales are nearly identical. For earthquake magnitudes greater than M 7.0, measurements on the moment magnitude scale are slightly greater than a corresponding Richter magnitude.

Ground Shaking

The intensity of the seismic shaking, or strong ground motion, during an earthquake depends on the distance between a particular area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the area. Earthquakes occurring on faults closest to the Project Area would most likely generate the largest ground motions.

During a major earthquake on a segment of one of the nearby faults, strong to very strong ground shaking is expected to occur at the Project Site. The United States Geological Survey Working Group on California Earthquake Probabilities concluded that there is a 63 percent probability that



SOURCE: Treadwell & Rollo; Turnstone Consulting

PARKMERCED PROJECT

FIGURE V.N.2: MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS IN THE SAN FRANCISCO BAY AREA

at least one earthquake of M 6.7 or greater will occur in the San Francisco Bay region in the next 30 years.[6] The closest active fault to the Proposed Project is the San Andreas fault, located approximately 1.25 miles to the west. The Hayward-Rodgers Creek fault system in the East Bay is further away, but more likely to have an earthquake of M 6.7 or greater.

Since 1800, four major earthquakes have been recorded on the San Andreas fault. In 1836 an earthquake with an estimated magnitude of M 6.25 occurred east of Monterey Bay. In 1838, an earthquake with estimated magnitude M 7.5 was recorded. The San Francisco Earthquake of 1906 had a maximum intensity of M 7.9 and was felt 348 miles (560 kilometers) away in Oregon, Nevada, and Los Angeles. The most recent large earthquake to affect the Bay Area was the Loma Prieta Earthquake of October 17, 1989, which had an epicenter in the Santa Cruz Mountains, approximately 58 miles (93 kilometers) from the Project Site, and a magnitude of M 6.9. The most recent major earthquake on the Hayward fault occurred in 1868, with an estimated magnitude of M 7.

Surface Rupture

The Parkmerced Project Site is not located within an Alquist-Priolo Earthquake Fault Zone[7] as defined by the California Department of Conservation, Division of Mines and Geology, and no active or potentially active faults exist on the Project Site or in the immediate vicinity.

Liquefaction and Lateral Spreading

Strong shaking during an earthquake can result in ground failure associated with soil liquefaction, lateral spreading, and post-liquefaction settlement (settlement of the soil after liquefaction has occurred). Liquefaction is the temporary transformation of loose, saturated cohesionless granular sediments (e.g., sand) from a solid state to a liquefied state as a result of seismic ground shaking and increase in pore water pressure. In the process, the soil undergoes a temporary loss of strength that may be substantial, causing ground displacement or failure. This weakening can allow foundations to shift, settle, or sink and potentially result in damage to structures ranging from cracks in walls and out-of-plumb doors to catastrophic foundation failure and total structural collapse. Since saturated soils are a necessary condition for liquefaction, soil in areas where the groundwater table is close to the surface has higher liquefaction potential than soil in areas where the water table is located at greater depths. Lateral spreading is a form of ground lurching with a horizontal displacement of soil toward an open channel or other "free" face, such as an

[6] USGS working group on California Earthquake Probabilities, "The Uniform California Earthquake Rupture Forcast, Version 2 (UCERF 2): USGS Open File Report 2007-1437 and California Survey Special Report 203," July 2008, found at http://pubs.usgs.gov/of/2007/1437, accessed on November 21, 2009.

[7] The Alquist-Priolo Earthquake Fault Zoning Act prohibits the construction of buildings used for human occupancy on the surface trace of active faults. When a fault trace is found by a geologic investigation, a structure for human occupancy cannot be placed over the trace of the fault and must be set back at least 50 feet from the fault.

excavation boundary or down a slope. Lateral spreading can result from either the slump of low-cohesion unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope. The lateral spreading hazard tends to occur alongside the liquefaction hazard for a particular site.

The Seismic Hazard Study Zones map[8] shows that the fill placed in the two lobes of Lake Merced that extend into the western portion of the Project Site is susceptible to liquefaction.

Tsunami Hazards

Tsunamis are large waves generated by earthquakes, landslides, or volcanoes. The Project Site is approximately 1.1 miles east of the ocean coastline and approximately 5 miles west of the closest portion of the shore of San Francisco Bay. Because of the Project Site's topographic setting and elevation at 80 to 200 feet above mean sea level, the potential for tsunami inundation is extremely remote. The western boundary of the Project Site is approximately 57 feet above the current level of Lake Merced and approximately 0.75 mile from the eastern shore of the lake. Map 6 of the Community Safety Element of the *San Francisco General Plan (General Plan)* indicates that the Project Site is not in an area of potential inundation and a tsunami originating in Lake Merced is not expected.

GEOLOGIC HAZARDS

Subsidence

Subsidence or settlement can cause substantial damage to buildings and underground utilities over time as soil layers lose their initial thickness. It typically occurs as a result of fluid extraction (e.g., petroleum) or compression of soft, geologically young sediments. None of these conditions are present at the Project Site.

Expansive and Corrosive Soils

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to buildings and infrastructure may occur if the potentially expansive soils were not considered in project design and during project construction. As part of the geotechnical evaluation for the Project Site, expansive soil potential was considered. Expansiveness is more characteristic of clay soils, and sandy soils do not expand much with moisture. Since the soil beneath the Project Site is mostly sandy soil, the potential for hazards associated with expansive soils is considered to be low.

[8] San Francisco Planning Department, *San Francisco General Plan*, Community Safety Element, Map 4, April 1997.

Corrosivity of soils is related to its pH (whether the soil is acidic or basic), oxygen content of the soil, and presence of chlorides (e.g., salinity) or sulfates in the soil or groundwater. Corrosive soils can affect the ability of concrete to cure, reducing concrete strength. Corrosive soils can also result in more rapid deterioration of concrete and/or metals such as pipes in the soil. Corrosive soils could exist on the Project Site.

Landslides and Erosion

The Project Site is slightly sloped, with the east side of the side approximately 120 feet higher than the west side. It is nearly level from north to south, except at its southernmost boundary near Brotherhood Way. The Project Site is currently covered by existing structures, parking areas, roads and other paving, and landscaping. Under current conditions, the potential for erosion at the Project Site is very low. Because of the topography of the site, landslides are not anticipated.

REGULATORY FRAMEWORK

California Building Code

The 2007 CBC, effective January 1, 2008, is based on the 2006 International Building Code. It is found in Title 24 of the California Code of Regulations. The CBC sets minimum requirements that ensure life safety but does not preclude earthquake damage and loss of function of structures that are not "essential facilities" (i.e., those that must function after an earthquake, such as hospitals). The San Francisco Building Code is the locally adopted code based on the 2007 CBC. Local building codes may not include standards less stringent than those in the CBC.

The Project Area is located in an area classified in the CBC as Seismic Zone 4, the highest risk category of the four seismic zones designated in the United States. The San Francisco Bay Area is within Seismic Zone 4. The Project Area, along with all development sites in the Bay Area, therefore has the most stringent requirements for seismic design.

Alquist-Priolo Earthquake Fault Zoning Act

Surface rupture is the most easily avoided seismic hazard. The Alquist-Priolo Act was passed in December 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards (the Seismic Hazards Mapping Act, adopted in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides). The law requires the State Geologist to establish regulatory zones, known as Earthquake Fault Zones, around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for

their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back 50 feet from the fault trace. Each fault trace zone extends approximately 200 to 500 feet on either side of the mapped fault trace.

No Alquist-Priolo earthquake fault zones are mapped in the City. Therefore, the Proposed Project would not be subject to the Act.

Seismic Hazards Mapping Act

In 1990, following the Loma Prieta Earthquake, the California Legislature enacted the Seismic Hazards Mapping Act to protect the public from the effects of strong ground shaking, liquefaction, landslides, and other seismic hazards. The Act established a statewide mapping program to identify areas subject to violent shaking, liquefaction, and earthquake-induced landslides. The program is intended to assist cities and counties in protecting public health and safety. This act requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. As a result, the California Geologic Survey is mapping Seismic Hazards Studies Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides, including San Francisco. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the Project Site must be conducted and appropriate mitigation measures incorporated into the project design.

San Francisco Building Code

The City adopted the 2007 CBC, with modifications, in December 2007.[9] The San Francisco Building Code is implemented by the Department of Building Inspection (DBI) and is mandatory for all development in the City. Sections of the San Francisco Building Code address geology and soils issues, including seismic safety, foundations, and soil investigations; safety of excavations and slopes on construction sites; and erosion control.

San Francisco General Plan

The Community Safety Element of the *General Plan* provides policies to ensure that the community is resilient to natural disasters. The Community Safety Element contains maps showing areas of liquefaction potential and probable liquefaction potential (Map 4), and areas of potential landslide hazard (Map 5). Portions of the Project Site are identified as an area of probable liquefaction potential.

[9] San Francisco Municipal Code, Title 17, Ordinance 3789, December 3, 2007; and ordinance 258-07, November 6, 2007.

IMPACTS

SIGNIFICANCE CRITERIA

The City and County of San Francisco has not formally adopted significance standards for impacts related to geology and soils. The Planning Department Initial Study Checklist form provides a framework of topics to be considered in evaluating potential impacts under CEQA. Implementation of the Proposed Project could have significant impacts if it were to:

N.a Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);
- Strong seismic ground shaking;
- Seismic-related ground failure, including liquefaction: or
- Landslides.

N.b Result in substantial soil erosion or the loss of topsoil;

N.c Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

N.d Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property;

N.e Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or

N.f Change substantially the topography or any unique geologic or physical features of the site.

There are no earthquake faults on or less than 1 mile from the Project Site and the Project Site is not within an Alquist-Priolo Earthquake Fault Zone. Therefore, no fault rupture would be expected to occur. No landslide areas or areas of subsidence are identified on the Project Site, and there are no unique geologic or topographic features on the Project Site. Soils on the Project Site are generally either sandy or made up of fill materials and are not clay; therefore, there are no expansive soils on the Project Site. Septic tanks would not be used, as the site is entirely served by the municipal sewer system. Therefore, no significant impacts related to these issues would result, and these topics are not discussed further.

IMPACT EVALUATION

Impact GE-1: The Proposed Project could result in substantial soil erosion or loss of topsoil during construction. ***(Less than Significant with Mitigation)*** **(Criterion N.b)**

The Project Site is slightly sloped and completely developed with structures, paving, and landscaping. These ground coverings would be removed during construction, exposing soil that could be eroded by wind and rainwater runoff. As discussed in Section V.O, Hydrology and Water Quality, Mitigation Measure HY-1, on p. V.O.12, would be implemented to reduce or prevent erosion. This measure calls for use of Best Management Practices, such as daily watering of exposed soil to reduce or avoid wind erosion, and other measures, as part of a Stormwater Pollution Prevention Plan. Therefore, with implementation of Mitigation Measure HY-1 (below), impacts related to erosion during construction would be less than significant

At completion of the 20-year construction period, there would be little or no exposed topsoil on the Project Site. The site would again be completely developed and covered with structures, paving (roadways, sidewalks, and pathways), landscaping (including parks, playing fields, an organic farm, and an orchard), and bioswales, streams and ponds. Thus, there would be little or no erosion or loss of topsoil after construction was completed. Therefore, no mitigation is required.

Mitigation Measure HY-1. A pollution prevention plan shall be developed for all construction activities on the Project Site. The applicant shall apply for coverage under the NPDES General Construction Activity Permit from the State Water Quality Control Board by filing a Notice of Intent (NOI), and, as part of the permit and monitoring process, prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall include design details and construction specifications for all site drainage control and other water quality control strategies, including Best Management Practices (BMPs) and other measures for stormwater pollution reduction. These include, but are not limited to, the following:

- Soil stabilization controls, such as hydroseeding and/or placement of straw mulch;
- Watering for dust control;
- Perimeter silt fences;
- Sediment traps/basins;
- Minimizing the length of open trenches and stockpile volumes;
- Slip prevention and control, such as minimizing grading during the rainy season; and
- Controlled entry and egress from the excavation area to minimize off-site tracking of sediment, and vehicle and equipment wash-down facilities.

Improvement Measure I-GE.a: The Project Sponsor has agreed to follow the conclusions and recommendations of the 2008 *Geologic, Geotechnical and Seismic Findings* report to use a soldier-pile-and-lagging shoring system to shore up soils during excavation for building foundations and basements, subject to final approval by DBI.

Improvement Measure I-GE.b: The Project Sponsor has agreed to follow the conclusions and recommendations of the 2008 *Geologic, Geotechnical and Seismic Findings* report to test the soils for corrosivity and take appropriate measures to protect new construction in contact with the soil from corrosion, subject to final approval by DBI.

Impact GE-2: The Proposed Project could expose people or structures to potential adverse effects due to ground shaking, ground failure, or liquefaction. *(Less than Significant)* (Criterion N.a)

Strong seismic ground shaking could occur at the Project Site during an earthquake on one of the nearby active faults such as the San Andreas and Hayward faults. Strong ground shaking would affect existing and new buildings on the Project Site. The 11 existing towers on the Project Site are not proposed to be changed as a result of the Proposed Project; seismic hazards related to these buildings would remain as at present.

New buildings at Parkmerced would be designed and constructed in accordance with the most up-to-date version of the San Francisco Building Code, which incorporates CBC requirements that specify procedures used to calculate seismic forces on structures during ground shaking and address them. During its review of the building permit applications for new buildings on the Project Site, DBI would use site-specific geotechnical reports to be prepared by a California Certified Engineering Geologist or a California Registered Geotechnical Engineer during final design of each new building or building complex. DBI would ensure that all new buildings would comply with the San Francisco Building Code requirements for structural safety in effect at the time that each permit is issued.

During a major earthquake on a nearby fault, saturated loose- to medium-dense sand would be susceptible to liquefaction-induced settlement. In addition, the medium-dense sand would experience densification that could cause settlement. Both could result in damage to buildings on the Project Site as a result of an earthquake.

The geotechnical investigation included an analysis of liquefaction potential.[10] The available subsurface information indicates that liquefaction and/or lateral spreading would affect limited areas of the Project Site, where the two former lobes of Lake Merced extend into the western and southwestern part of the Project Site and have deep fill, and in the fill above existing major utility trenches. Where this hazard exists, designing building foundations to account for the anticipated

[10] *Geologic, Geotechnical, and Seismic Findings*, p. 10.

differential movements or using deep foundations that transfer building loads to the soil below the layers susceptible to liquefaction-induced settlement and/or densification during an earthquake would reduce the hazard to less-than-significant levels. As described in Chapter III, Project Description, pp. III.24-III.29, there would be six building sizes ranging in height from about 15 feet (single-story buildings) to 145 feet (14-story buildings). According to the geotechnical report prepared for the Proposed Project, the one- to five-story buildings to be constructed in the deep fill areas are expected to be wood frame with one basement level. These buildings should have mat foundations supported by several feet of compacted fill if they have small footprints and are designed to accommodate some differential settlement. Additional geotechnical studies would need to be carried out for buildings over five stories to identify appropriate foundations that would accommodate the soil type in the areas of potential liquefaction hazard. For the 6- to 14-story buildings located in areas of deep fill, drilled, jet-grouted, or driven piles that extend beneath the fill, estimated to be 30 to 80 feet below basements, may be appropriate. For the 6- to 14-story towers outside the areas of deep fill, it is likely that mat foundations can be used when two below-grade levels are planned. When only one below-grade level is planned, these taller buildings may require ground improvement beneath the mat foundation or, alternatively, the building may be supported on shallow end-bearing piles.[11]

The geotechnical investigation recommended that to ensure appropriate foundations are selected, further investigation be performed to evaluate the potential for liquefaction and lateral spreading at appropriate locations. Where this hazard exists on the Project Site, the site-specific geotechnical investigations prepared for each building site pursuant to the San Francisco Building Code, as described above, would identify the appropriate foundation type to account for the anticipated liquefaction and/or densification.

Given compliance with the requirements of the San Francisco Building Code, including review and enforcement of geotechnical reports and review of building plans and site-specific soils report(s) by DBI in order to determine necessary engineering and design features, there would be no significant impacts related to seismic hazards. The exposure of people or structures to potential adverse effects due to seismic hazards would be less than significant. No mitigation is required.

Impact GE-3: The Proposed Project could be located on unstable soil, or could become unstable as a result of the Proposed Project, and potentially result in soil instability or soil corrosivity. *(Less than Significant)* (Criterion N.c)

The primary soil stability issues related to the proposed development are the presence of deep fill at several locations on the western and southwestern part of the site. Excavation for foundations and below-grade levels for basements could result in slope instability in these locations during construction, or could cause the soils beneath the surrounding development to settle. To prevent

[11] *Geologic, Geotechnical and Seismic Findings*, p. 13.

slope instability and settlement, the sides of the excavation would be sloped or shored up using standard engineering practices, and significant impacts would not be expected.

The geotechnical report for the Proposed Project recommends that temporary slopes used during construction be designed following current standards established by the Occupational Safety and Health Administration, set out in Title 29 of the Code of Federal Regulations, Part 1926. The maximum recommended temporary slope for the soil type on the Project Site is 1.5:1 (horizontal to vertical). Temporary slopes would also be protected from drying or saturation during construction, and heavy vehicles and equipment would not be permitted at the edges of slopes.[12] Therefore, the Proposed Project would not be located on unstable soil and this impact would be less than significant.

There are several options for selecting a suitable shoring system for excavations where the sides cannot be sloped. The geotechnical report prepared for the Proposed Project concluded that a soldier-pile-and-lagging shoring system would be an effective approach at the Parkmerced Project Site.[13] The Project Sponsor has agreed to implement this recommendation as an improvement measure (Improvement Measure I-GE.a, p. V.N.12), subject to final approval by DBI.

Impact GE-4: The Proposed Project would be located on corrosive soils. *(Less than Significant)*

Corrosive soils could affect new metal piping or concrete located underground. The geotechnical report has recommended that the soils be tested for corrosivity at the design stage, and appropriate anti-corrosion measures be implemented.[14] Therefore, the Proposed Project would not be located on corrosive soils. The Project Sponsor has agreed to implement this recommendation as an improvement measure (Improvement Measure I-GE.b, p. V.N.12).

Impact GE-5: The development proposed as part of the Proposed Project, when combined with other reasonably foreseeable development in the vicinity, would not result in significant cumulative impacts with respect to geology, soils or seismicity. *(Less than Significant)*

Development of the Proposed Project, with mitigation, would have less-than-significant impacts related to exposing persons or structures to geologic, soils, or seismic hazards. Several foreseeable development proposals are under consideration and are directly adjacent to the Project Site. The approved project at 800 Brotherhood Way calls for the construction of 60

[12] *Geologic, Geotechnical and Seismic Findings*, p. 16.
[13] *Geologic, Geotechnical and Seismic Findings*, p. 15. A soldier-pile-and-lagging system consists of H-shaped steel beams placed into predrilled holes backfilled with concrete. Wooden beams are placed between the steel beams, forming a wall. If necessary, tie-backs can be anchored into the hillside and attached to the steel beams.
[14] *Geologic, Geotechnical and Seismic Findings*, p. 16.

single-family homes and 61 two-unit buildings on the 7.7-acre site between the south edge of the Project Site and the open space on the north side of Brotherhood Way. The *2007-2020 San Francisco State University Campus Master Plan* proposes physical changes and improvements to the campus, including construction of new buildings that would add approximately 972,400 square feet and 660 net new dwelling units to the campus. Anticipated building would range in height up to 100 feet tall. A proposed project at 77-111 Cambon Drive involves the demolition of two existing one-story commercial buildings and the construction of a mixed-use project ranging in height from two to four stories on the triangular site adjacent to the east boundary of the Project Site.

The Proposed Project combined with these other foreseeable development projects would result in increased population and development in an area subjected to seismic risks and hazards. However, geology impacts are generally localized and site specific and do not have cumulative effects with other projects. Cumulative future development in the Project Area would be subject to similar design review and safety measures as those for the proposed project. These measures would reduce the geologic effects of cumulative projects to less-than-significant levels. Therefore, the Proposed Project, combined with other foreseeable development in the area, would not result in a cumulatively significant impact by exposing people or structures to risk related to geologic hazards, soils, and/or seismic conditions.

O. HYDROLOGY AND WATER QUALITY

This section describes the water resources on and near the Parkmerced Site. The Setting discussion describes the existing hydrology of the Project Site, including groundwater. The Impacts discussion lists significance criteria and describes the changes in drainage, stormwater management, and groundwater conditions that would result from construction and operation of the Proposed Project.

SETTING

CLIMATE

San Francisco has a Mediterranean climate with cool wet winters and relatively warmer dry summers. Temperatures in San Francisco average 58˚ Fahrenheit (F) annually, ranging from the mid-40s in winter to the mid-70s in late summer.[1] Strong onshore winds in summer keep the air temperature cool and generate fog through September. Temperatures are warmest in September and October. The average annual rainfall in San Francisco is approximately 20 inches and is generally confined to the wet season, from October through April. Long-term rainfall records indicate that wet and dry cycles lasting several years are common in the San Francisco Bay Area. Severe rainstorms occur approximately once every three years. Except for occasional tropical storms or drizzle from thick marine clouds, summers are nearly completely dry. Coastal fog reduces summer irrigation requirements in some areas.

DRAINAGE

The Parkmerced Site is an existing residential neighborhood with 3,221 residential units on approximately 152 acres of land located in the southwest portion of San Francisco adjacent to Lake Merced. The Project Site is highly developed with streets, buildings, and landscaping. The existing topography is slightly sloped, gradually sloping down from east to west from about 200 feet above mean sea level, near its southeast corner, to 80 feet above mean sea level near its southwest corner. From north to south, the Project Site is relatively flat, except at its southern edge where it drops off steeply toward Brotherhood Way. Prior to development of the Project Site in the 1940s and 1950s, the topography of the site was rolling, and three stream channels directed runoff into Lake Merced. The rolling topography was graded flat when the site was developed. The original drainage ways were filled and San Francisco installed an underground storm drain system that discharges all runoff to the combined sewer system. The combined sewer system is operated by the San Francisco Public Utilities Commission (SFPUC). Today, there are no drainage features; runoff is diverted into storm drains and directed into the City's combined stormwater and sanitary sewer system. Approximately one-quarter of the site is landscaped,

[1] PBS&J, *Final Water Supply Assessment for the Proposed Parkmerced Project*, November 2009, p. 2-1.

which allows some infiltration of runoff. Compared to 100 years ago, however, drainage from the site has been substantially reduced. This change in drainage has resulted in much less runoff to Lake Merced, and may be one of the reasons the level of the lake has dropped more than 12 feet in the past 60 years.

STORMWATER

Throughout San Francisco, stormwater enters the combined sewer system through roof drains on buildings and catch basins along the streets. Because San Francisco is highly developed, most of the rainwater flows to the sewer system. During light rainfall, runoff enters the combined sewer system and flows to one of the SFPUC's three wastewater treatment plants, where it is treated and discharged to San Francisco Bay and the Pacific Ocean. When treatment capacity is reached, additional flows are stored temporarily in the underground transport/storage facilities and released gradually for treatment and discharge.

As discussed in Section V.K, Utilities and Services Systems, during dry weather, all sanitary sewage and stormwater runoff from the west side of San Francisco (approximately 16.3 million gallons per day [mgd]) is currently pumped to the Oceanside Water Pollution Control Plant (OSP), located along the Great Highway and Sloat Boulevard near the San Francisco Zoo, and treated to secondary effluent quality[2] before flowing by gravity to the ocean via the Southwest Ocean Outfall (SWOO). During light rainfall, all flows to the OSP (up to 43 mgd) continue to receive this level of treatment. Combined storm and sanitary inflows to the OSP exceeding 43 mgd, and up to 65 mgd, receive primary treatment and disinfection at the OSP.[3] Combined flows exceeding the OSP maximum of 65 mgd and up to 110 mgd receive the equivalent of primary treatment without disinfection in the Westside Transport Storage Box (WST) sewer before being pumped for ocean disposal through the SWOO. The Westside system is designed and operated to average eight combined sewer overflows annually. In 1998-2003, the Westside system averaged seven combined sewer overflows per year.[4] All discharge facilities are operated in compliance with permits issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB). The Westside system is designed, and permitted pursuant to the City's National Pollutant Discharge Elimination System (NPDES) permit.

When overflow events occur, the contents are mainly rainwater. (Studies have shown that overflows are approximately 94 percent stormwater.) The outfall structures are equipped with

[2] Secondary effluent has undergone treatment to remove floatable materials (such as oil and grease), settleable materials (such as sand and gravel), and a substantial portion of the organic compounds in the waste. In San Francisco, it is treated with chlorine to kill bacteria and the chlorine is removed before being discharged.

[3] Primary treatment removes floatable and settleable materials.

[4] Hydroconsult Engineers, Inc., *Technical Memorandum, 19th Avenue Corridor Study Area – Cumulative Utilities Analysis*, January 14, 2010, p. 8. A copy of this memo is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2008.0021E.

weirs and baffles that trap wastewater solids that have not settled. Overflows thus undergo essentially the equivalent of primary treatment prior to discharge.

The City's combined sewers are designed to adequately convey the 5-year design storm.[5] Over time, however, paved and other impermeable surfaces (e.g., buildings) in the City have increased due to development, increasing the amount of water that enters the combined sewers. The design capacity of the combined sewers is not always sufficient to handle this increased flow, resulting in sewer overflows and flooding in some neighborhoods.

GROUNDWATER

San Francisco overlies all or part of seven groundwater basins: the Lobos, Marina, Downtown, and South Basins, located wholly within the City limits, and the Westside, Islais Valley, and Visitation Valley Basins, which extend south into San Mateo County. The Parkmerced Site overlies the Westside Groundwater Basin, an aquifer system that extends from Golden Gate Park to Burlingame. Except for the Westside and Lobos Basins, groundwater in the basins is insufficient for municipal supply due to low yield.

The portion of the Westside Basin aquifer located within San Francisco is commonly referred to as the North or Upper Westside Basin. Approximately 100 years ago, groundwater from the basin was a major source of San Francisco's drinking water supply, and in the 1930s pumping rates from the basin were reported to be up to a total of 6 mgd. Water from the basin is still used for irrigation and lake filling at Golden Gate Park as well as at the San Francisco Zoo. To reduce the amount of groundwater that is pumped from the basin, the SFPUC has proposed the Westside Recycled Water Project, which would provide recycled water to replace groundwater for non-potable uses in Golden Gate Park, allowing groundwater to be conserved for potable uses.

Early in its history, San Francisco made significant use of local groundwater, springs, and spring-fed surface water. However, after surface water supplies were developed in the Peninsula and Alameda watersheds and the Hetch Hetchy system was completed in the 1930s, the use of groundwater for the water supply system has been minimal.[6]

The soils underlying Parkmerced are primarily medium-dense to dense sand, and therefore have very high percolation rates, resulting in a very high capacity for infiltration. Before development of the west side of the City, rainfall percolated into the groundwater. During the past 100 years, however, development on the west side of the City, including Parkmerced, has reduced recharge of the Westside Basin aquifer as open ground was replaced with pavement and structures,

[5] The 5-year design storm is a storm event that has an annual exceedance probability of 20 percent, or a chance of occurring once every 5 years.
[6] SFPUC, *2005 Urban Water Management Plan for the City and County of San Francisco*, December 2005.

reducing the infiltration area. This change in drainage has resulted in much less infiltration into the Westside Basin aquifer.[7]

WATER QUALITY

The quality of surface water and groundwater in San Francisco is affected by past and present land uses, as well as by the composition of local geological materials. Water quality in surface and groundwater bodies is regulated by the RWQCB, which is responsible for implementation of state and federal water quality protection regulations. The RWQCB implements the *Water Quality Control Plan*, a master policy document that identifies beneficial uses of the water resources of the Bay Area and establishes water quality management policies for the region.

There are no natural surface water features on the Project Site. Lake Merced is the nearest surface water body to the Project Site. Lake Merced has high levels of nutrients and significant production of algae. The SFPUC is currently preparing the *Lake Merced Watershed Plan*, which will contain a comprehensive set of strategies to sustain the health of the Lake Merced Watershed, including enhancing the watershed's ecological function, maintaining beneficial uses of the watershed, providing public education, providing recreational opportunities, and maintaining sustainability.[8]

FLOODING

The National Flood Insurance Program (NFIP) was created in 1968 to reduce the risks posed by floods throughout the United States. Under the NFIP, the federal government provides financial backing for affordable flood insurance in exchange for adoption of floodplain management regulations by communities participating in the program. The City of San Francisco does not currently participate in the NFIP; however, a Citywide Floodplain Management Committee has been created to formulate a recommendation regarding the City's decision to join the NFIP and adoption of a Floodplain Management Ordinance.[9] The Federal Emergency Management Agency (FEMA) has issued an interim Flood Insurance Rate Map (FIRM) for San Francisco.[10] The FIRM provides information that is used for flood insurance and floodplain management purposes under the NFIP. The FIRM shows areas at risk from a flood as having a 1 percent chance of occurrence in any given year. The Project Site is not within or adjacent to a mapped 100-year flood hazard area.

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[7] SFPUC, San Francisco Groundwater Supply Project Fact Sheet, Fall 2009, http://sfwater.org/mto_main.cfm/MC_ID/13/MSC_ID/424/MTO_ID/714, accessed October 9, 2009.
[8] SFPUC, http://sfwater.org/msc_main.cfm/MC_ID/20/MSC_ID/179, accessed November 13, 2009.
[9] Office of the City Administrator, City and County of San Francisco, http://www.sfgov.org/site/uploadedfiles/risk_management/factsheet.pdf, accessed November 13, 2009.
[10] Office of the City Administrator, City and County of San Francisco, http://www.sfgov.org/site/risk_management_index.asp?id=69690, accessed November 13, 2009.

The Community Safety Element of the *San Francisco General Plan (General Plan)* addresses flood prone areas within the City of San Francisco. There are no areas prone to surface flooding in San Francisco. According to Map 7, Inundation Areas Due to Reservoir Failure, of the Community Safety Element,[11] the Parkmerced site is not within an area of inundation.

COASTAL HAZARDS

The coastal hazards of sea level rise, tsunami, and extreme high tides primarily affect areas near shorelines, unprotected by seawalls or levees, and areas with elevations less than approximately 10 feet NGVD.[12] Estimates for sea level rise between 2000 and 2050 in San Francisco Bay range from 4 to 16 inches.[13] The lowest elevation of the Project Site is approximately 80 feet above sea level, and the Project Site is approximately 1.1 miles east of the ocean coastline.

The Community Safety Element of the *General Plan* identifies areas within the City subject to inundation from a tsunami. According to Map 6 of the Community Safety Element, the Parkmerced site is not within an area of tsunami inundation.

REGULATORY FRAMEWORK

Federal Laws and Regulations

Clean Water Act

The Clean Water Act (CWA), enacted by Congress in 1972 and amended several times since inception, is the primary federal law regulating water quality in the U.S. Its objective is to reduce or eliminate water pollution in the nation's rivers, steams, lakes, and coastal waters. The CWA prescribes the basic federal laws for regulating discharges of pollutants into waters of the U.S., including setting water quality standards for contaminants in surface waters, establishing wastewater and effluent discharge limits from various industry categories, and imposing requirements for controlling nonpoint-source pollution.

Section 404 of CWA

Section 404 of the CWA is administered by the U.S. Army Corps of Engineers (USACE). Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States (waters of the U.S.), including wetlands. Activities in waters of the U.S. regulated under this program include fill for development, water resource projects, infrastructure development, and mining projects. Section 404 requires a permit before dredged or

[11] San Francisco Planning Department, *San Francisco General Plan*, adopted April 1997.
[12] National Geodetic Vertical Datum. This standard is approximately equal to the mean sea level of 1929.
[13] Association of Bay Area Governments, http://quake.abag.ca.gov/mitigation/ThePlan-C-Version-October09.pdf, p. C-52, accessed November 13, 2009.

fill material can be discharged into waters of the U.S. unless the activity is exempt from Section 404 regulation.

Section 402 of CWA

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the (NPDES program, administered by the U.S. Environmental Protection Agency (U.S. EPA). In California, the State Water Resources Control Board (SWRCB) is authorized by the U.S. EPA to oversee the NPDES program through the nine RWQCBs. The Project Site is located within the jurisdiction of, and is regulated by, Region 2, San Francisco Bay RWQCB.

An NPDES General Permit for Storm Water Discharges Associated with Construction Activity (or General Permit) is required for projects that disturb more than 1 one acre of land. The NPDES permitting process requires the applicant to file a public Notice of Intent to discharge stormwater and to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include a site map and a description of proposed construction activities. In addition, it must describe the Best Management Practices (BMPs) that will be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to the SWRCB to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Section 401 of CWA

Under Section 401 of the CWA, an applicant seeking a Section 404 CWA permit for a project that could result in a discharge into waters of the U.S. must obtain a certification from the state that confirms that the discharge will comply with state water quality standards. The RWQCBs administer the Section 401 program with the intent of prescribing measures that are necessary to avoid, minimize, or mitigate adverse project impacts on water quality and ecosystems and ensure compliance with state water quality standards.

State Laws and Regulations

California Water Code

The California Water Code, administered by the California Department of Water Resources, contains the fundamental provisions related to management of the state's water resources. The California Water Code requires that water resources of the state be put to beneficial use to the fullest possible extent, and that waste, unreasonable use, or unreasonable method of use be prevented. Acts contained under the California Water Code include the Water Reuse Law, the California Water Recycling Act, and the Integrated Regional Water Management Planning Act.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne) was adopted by the state legislature in 1969 and is the primary state statute covering the waters of California. The act specifies water quality provisions and discharge requirements for regulating the discharge requirements that could affect the quality of state waters. Under the act, the SWRCB has the ultimate authority over state water rights and water quality policy. The RWQCB is responsible for the oversight of local water quality on a day-to-day basis.

Under Porter-Cologne, the RWQCBs regulate the discharge of waste to the waters of the state. The terms "discharge of waste" and "waters of the state" are broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other discharge that may directly or indirectly affect waters of the state. Waters of the state may include any surface water or groundwater, including saline waters, within the boundaries of the state. This jurisdiction includes waters that the USACE deems to be wetlands. Any party proposing to discharge waste that could affect waters of the state must file a report of waste discharge with the RWQCB, which will then respond to the report by issuing Waste Discharge Requirements (WDRs) in a public hearing, or by waiving WDRs (with or without conditions) for the proposed discharge. A WDR may also be issued in addition to a water quality certification under Section 401 of the CWA.

As described above, the RWQCB is required to develop, adopt, and implement a Water Quality Control Plan, also known as a Basin Plan, for its region. *The San Francisco Bay Basin Plan* is relevant to the Project Site. The Basin Plan is the master policy document that describes the legal, technical, and programmatic basis of water quality regulation for the Basin. The Basin Plan identifies beneficial uses of surface water and groundwater in the Basin, specifies water quality objectives and standards for surface water and groundwater, and develops the actions necessary to control nonpoint and point sources of pollutants in the state's waters.

Recycled Water General Permit for Landscape Irrigation

In July 2009, the SWRCB released General Waste Discharge Requirements for Landscaping Irrigation Uses of Municipal Recycled Water (Recycled Water General Permit), allowing municipal entities to distribute disinfected tertiary-treated recycled water to select customers for landscape irrigation. The Recycled Water General Permit is intended to further the state's Recycled Water Policy and California Water Code Section 13552.5, both of which encourage recycled water for non-potable uses.

To obtain coverage under the Recycled Water General Permit, the producer/distributor of recycled water must submit a Notice of Intent and Operations and Maintenance Plan to the SWRCB. The Operations and Maintenance Plan must contain a detailed operations plan for use

areas, including procedures for implementation of regulations regarding recycled water use and maintenance of equipment and emergency backup systems to maintain compliance with the conditions of the Recycled Water General Permit. The Recycled Water General Permit notes that the use of recycled water may not be appropriate for all scenarios because of unique site-specific characteristics and conditions. In addition, because there are certain public health concerns associated with recycled water, the Recycled Water General Permit includes exposure control measures, including minimum setback distances, signage, method of application, and use restrictions and only allows use of water treated to tertiary treatment requirements, established in Title 22 of the California Code of Regulations (CCR Title 22). A project proposing to use recycled water for landscape irrigation would require coverage under this Recycled Water General Permit or an individual permit.

Local Regulations

City of San Francisco Construction Site Water Pollution Prevention Program

The City of San Francisco Construction Site Water Pollution Prevention Program requires stormwater quality BMPs at all construction sites, regardless of the size of the site and whether the site drains to the combined sewer or a separate storm sewer system.

For sites that disturb 1 or more acres and drain to the separate sewer system, compliance with the Construction General Permit and preparation and implementation of a SWPPP that meets Construction General Permit conditions is required. For sites that discharge to the combined sewer system, a SWPPP that includes an Erosion and Sediment Control Plan and meets SFPUC requirements must be submitted to the SFPUC prior to initiation of construction.

IMPACTS

The City and County of San Francisco has not formally adopted significance standards for impacts related to hydrology and water quality. The Planning Department Initial Study Checklist form provides a framework of topics to be considered in evaluating potential impacts under CEQA. Implementation of a project could have potentially significant impacts related to hydrology and water quality if it were to:

- O.a Violate any water quality standards or waste discharge requirements;
- O.b Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- O.c Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;

O.d Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;

O.e Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

O.f Otherwise substantially degrade water quality;

O.g Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;

O.h Place structures within a 100-year flood hazard area that would impede or redirect flood flows;

O.i Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or

O.j Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

PROPOSED PROJECT AND STORMWATER MANAGEMENT SYSTEM

Project Overview

The Proposed Project is a long-term mixed-use development program to comprehensively replan and redesign the Parkmerced site. The 11 existing tower buildings would be retained, and over a period of approximately 20 years, the remaining 170 two-story buildings would be demolished in phases and replaced with approximately 115 new buildings ranging in height from 1 to 14 stories. The Proposed Project also includes new open space uses, including athletic fields, walking and biking paths, an approximately 2-acre organic farm, and community gardens. At completion, there would be approximately 68 acres of open space, compared to about 75 acres of open space currently at Parkmerced.

Proposed Stormwater Management System

The Proposed Project includes implementation of a stormwater management system to capture and filter stormwater runoff from buildings, streets, and other non-permeable surfaces rather than diverting it to the municipal wastewater system. As shown in Figure III.18: Proposed Hydrology Network, p. III.49, this system would capture and filter runoff through a series of on-site bioswales, streams, ponds, and other natural filtration systems intended to retain, detain, and infiltrate conveyed runoff. Included is a 1.4-million-gallon stormwater collection pond to be constructed in the central oval Common area (Juan Bautista Circle). Water would flow into the collection pond through constructed treatment and filtration mechanisms (streams, bioswales, biogutters). The collection pond would hold water year-round and native aquatic vegetation would be encouraged. Stormwater overflow from the collection pond and other flows from the

western and northern portions of the Project Site would flow through a riparian corridor[14] consisting of streams, bioswales, biogutters, and smaller ponds into a terminal wetland pond proposed in the southwest corner of the Project Site. Most of this stormwater runoff would infiltrate directly into the Upper Westside Basin that feeds Lake Merced; however, a fraction of the average annual runoff would flow off site from the terminal wetland pond into Lake Merced, after being treated by either an on-site wetland or an underground filtration facility.

Proposed Stormwater Discharge and Variants

There are three options for discharge into Lake Merced: piped from the terminal wetland pond into an existing 30-inch conduit below Lake Merced Boulevard; piped from the terminal wetland pond into a new conduit below Brotherhood Way, where stormwater would flow into the willow basin and discharge into an existing 48-inch conduit below Lake Merced Boulevard; or piped from the terminal wetland pond into a new conduit below Brotherhood Way, which would connect into the existing 48-inch conduit below Lake Merced Boulevard.

As described in Chapter III, Project Description, pp. III.48-III.51, the stormwater management system includes two variants for discharge of treated stormwater from the Project Site. If the SFPUC determines that treated stormwater cannot be discharged directly into Lake Merced, then stormwater runoff from the terminal wetland pond would either (A) be retained on the Project Site in below-ground stormwater drainage wells to gradually infiltrate into groundwater, or (B) be discharged directly into the existing combined sewer/stormwater pipes that flow by gravity to the OSP.

IMPACT EVALUATION

Impact HY-1: The Proposed Project could violate a water quality standard or a waste discharge requirement, or otherwise substantially degrade water quality. *(Less than Significant with Mitigation) (*Criteria O.a, O.f)

Construction Impact on Water Quality

During the construction phases of the Proposed Project, existing vegetation and pavements would be temporarily removed and surface soils would be disturbed due to excavation and grading activities on the Project Site. Exposed soils would be exposed to stormwater runoff, potentially causing erosion and entrainment of sediments in the runoff. If not managed properly, the sediments would be carried in watercourses and, as the entire site currently drains to the City's combined sewer system, cause sediments to be discharged to the sewer system where they would reduce the capacity of the sewer lines, potentially causing sewer overflows.

[14] A riparian corridor is the zone between land and a stream, characterized by water-loving plants.

The potential for releases of fuels, oils, paints, and solvents is present at most construction sites. Once released, these chemicals would flow or be carried by stormwater runoff, wash water, and dust control water to the sewer, potentially reducing the quality of the receiving waters.

To minimize the impact of sediments and chemical spills on the sewer system, the Project Sponsor would comply with the requirements of Article 4.1 of the San Francisco Public Works Code that regulates the quantity and quality of discharges to the combined sewer system. These requirements include control of sediments and erosion and implementation of BMPs. The Project Sponsor would implement Mitigation Measure HY-1, which calls for preparation and implementation of a SWPPP in accordance with the City's Construction Site Runoff Pollution Prevention Procedures, which could include, but is not limited to the BMPs specified. The SWPPP would include provision for facilities and practices to prevent spills of fuels and chemicals and to control the release of chemicals to surface water. Implementation of the SWPPP with specified BMPs would reduce pollution of surface water throughout the construction phases of the Proposed Project.

Implementation of Mitigation Measure HY-1 throughout the Proposed Project's 20-year buildout period will reduce the impact of excavation and grading and construction activities on water quality to a less-than-significant level.

Operational Impacts on Water Quality

During operation of the Proposed Project, new and intensified land uses at the Project Site would result in increased vehicle use. Leaks of fuel or lubricants, tire wear, and fallout from vehicle exhaust onto paved surfaces would contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in stormwater runoff. Runoff from landscaped areas would contain nutrients.

Currently these pollutants are carried to the combined sewer system; however, as described in "Proposed Project and Stormwater Management System," pp. V.O.9-V.O.10, the Proposed Project would include implementation of a stormwater management system to capture and filter stormwater runoff from buildings, streets, and other non-permeable surfaces rather than diverting it to the municipal wastewater system. In addition, implementation of the *Sustainability Plan* proposed as part of the Proposed Project would substantially reduce the use of pesticides. Treated stormwater runoff that would be discharged to Lake Merced via one of the two discharge options (variants A and B) and would comply with water quality standards for key pollutants and would be regulated by the RWQCB.

Under Project Variant A, stormwater runoff would be collected and filtered as it would with the Proposed Project, but it would then percolate into the groundwater basin instead of being discharged. It would have no off-site impact.

Under Project Variant B, stormwater runoff would be collected as it would for the Proposed Project. It would be discharged to the combined sewer system with less treatment before it flows to the OSP, where it would be treated and discharged. Total sanitary flow in the Westside portion of the combined sewer system is assumed to be about 17.58 mgd for analysis purposes.[15] The volume of stormwater flow that would be added by the variant would increase the total flow in the Westside system by 0.24 mgd or 1.4 percent. As the normal dry weather capacity of the OSP is 43 mgd,[16] the plant has sufficient capacity to treat the increase alone. The addition of 0.24 mgd of stormwater flows would be a smaller volume in relation to the 65 mgd that is currently treated at the OSP during rainy weather. Therefore, operational impacts on water quality would be less than significant. No mitigation is required.

Mitigation Measure HY-1. A pollution prevention plan shall be developed for all construction activities on the Project Site. The applicant shall apply for coverage under the NPDES General Construction Activity Permit from the State Water Quality Control Board by filing a Notice of Intent (NOI), and, as part of the permit and monitoring process, prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall include design details and construction specifications for all site drainage control and other water quality control strategies, including Best Management Practices (BMPs) and other measures for stormwater pollution reduction. These include, but are not limited to, the following:

- Soil stabilization controls, such as hydroseeding and/or placement of straw mulch;
- Watering for dust control;
- Perimeter silt fences;
- Sediment traps/basins;
- Minimizing the length of open trenches and stockpile volumes;
- Slip prevention and control, such as minimizing grading during the rainy season; and
- Controlled entry and egress from the excavation area to minimize off-site tracking of sediment, and vehicle and equipment wash-down facilities.

Impact HY-2: The Proposed Project would not result in an increase of combined sewer overflows from the City's combined sewer system. (*No Impact*) (Criterion O.e)

Implementation of the Proposed Project would reduce the annual average number of sewer overflows. Currently the Westside portion of the combined sewer system overflows approximately 6.75 times per year, on average. Because the majority of stormwater runoff from

[15] Current dry weather sanitary flows on the Westside are about 16.3 mgd. The computer model that is used to analyze wastewater flows in the Westside and Citywide system uses the slightly higher volume of 17.58 to be conservative.

[16] At 43 mgd, secondary treatment is achieved. The treatment plant can provide primary treatment for flows up to 65 mgd.

Parkmerced would be removed from the Westside system by the Proposed Project, there would be a decrease in the number of sewer overflows from the current long-term average of 6.75 times per year to 6.41 times per year.[17]

Implementation of Project Variant A, which calls for percolation into stormwater drainage wells, would reduce the amount of stormwater runoff entering the combined sewer system from the Project Site by the same amount as the Proposed Project would.

Implementation of Project Variant B, which would involve discharging some runoff from the Project Site to the City's combined sewer system, would increase flow in the Westside system by 0.24 mgd. Like the Proposed Project, the Project Variant would also reduce the number of overflows; overflows would occur an average of approximately 6.52 times per year,[18] slightly more often than the number of events projected for the Proposed Project but less often than the current number of such events.

With the implementation of the proposed stormwater management system, the operational impact of the Proposed Project, or the Project Variants, on water quality standards or waste discharge requirements would be less than significant. No mitigation is required.

Impact HY-3: The Proposed Project would not result in depletion of groundwater or reduction of groundwater levels. (*No Impact*) (Criterion O.b)

The existing Parkmerced Site is highly developed with buildings and roads. Currently, runoff is intercepted and directed to the City's combined sewer system. As discussed above under Setting, pp. V.O.3-V.O.4, there is some percolation in areas with lawns; however, groundwater recharge has been substantially reduced on the site.

As described under "Proposed Project and Stormwater Management System" on pp. V.O.9-V.O.10, the Proposed Project would substantially increase groundwater recharge. A system to capture and filter stormwater runoff from buildings, streets, and other non-permeable surfaces through a series of bioswales, ponds, and other natural filtration systems would be constructed on the Project Site. This system would retain, detain, and allow infiltration of 85 percent of the average annual runoff rather than diverting it to the municipal wastewater system (see Figure III.18: Proposed Hydrology Network, p. III.49). Some of the captured stormwater would be diverted to a 1.4-million-gallon stormwater collection pond proposed to be located in the center of Juan Bautista Circle on the Project Site. Water would flow from the central pond through streams to a terminal wetland pond in the southwest corner of the Project Site. Stormwater not directed to the central pond would flow through a combination of bioswales, biogutters, and

[17] Hydroconsult Engineers, Inc., Technical Memorandum, Parkmerced Project Impacts Analysis, Water and Wastewater Infrastructure and Services, September 18, 2009 (hereinafter referred to as "Water and Wastewater Technical Memorandum").
[18] Water and Wastewater Technical Memorandum.

smaller ponds to the terminal wetland pond. Most of this stormwater runoff would infiltrate directly into the Upper Westside Basin, with a fraction of the average annual runoff flowing off site.

Implementation of Project Variant A would increase the rate of infiltration of runoff from the Project Site to the groundwater aquifer. Under Project Variant B, a portion of the runoff would be discharged to the combined sewer system. This would not substantially reduce the total amount of groundwater infiltration,because runoff would not be removed from the stormwater management system for discharge until it had passed through the biogutters, bioswales, and ponds where infiltration would occur.

Therefore, the Proposed Project, and the Project Variants, would increase groundwater recharge and groundwater supplies and the impact of the Proposed Project would be less than significant. No mitigation is required.

Impact HY-4: The Proposed Project could alter the existing drainage patterns on the Project Site, resulting in substantial erosion or siltation or localized flooding. *(Less than Significant with Mitigation)* (Criteria O.c, O.d)

The Project Site is relatively flat and slopes to the west and south. The site is highly developed with streets, buildings, and landscaping; there is virtually no exposed soil. Excavation and grading of the Project Site during the construction phases of the Proposed Project would remove existing vegetation and pavements, thus exposing the sandy soil of the Project Site to erosion by runoff. As described above under "Water Quality," on p. V.O.12, Mitigation Measure HY-1 requires that a SWPP covering all phases of the 20-year project buildout period be prepared before construction begins. The BMPs include features to minimize erosion and sedimentation. Neither of the Project Variants would affect the prevention of erosion and sedimentation during construction on the Project Site. Thus, the impact of the Proposed Project on erosion would be less than significant.

Impact HY-5: Operation of the Proposed Project would not contribute runoff water that would exceed the capacity of the existing stormwater drainage systems, nor would it create substantial additional sources of polluted runoff. (*No Impact)* (Criterion O.e)

The Proposed Project would increase the number of buildings on the Project Site, which would increase the area of impervious surfaces and, consequently, the amount of runoff from the Project Site; however, because of the drainage approach proposed in the *Sustainability Plan*, runoff from the Project Site would be reduced rather than increased. This would result in reduced flows in the combined sewer system, which would improve the capacity of the Westside wastewater system to transport stormwater runoff generated elsewhere in the system. Currently, the capacity of the Westside system is not always sufficient to handle flows during periods of heavy rainfall,

resulting in sewer overflows and flooding in some neighborhoods. Implementation of the Proposed Project would result in fewer combined sewer overflows.

Implementation of Project Variant A, which would provide various facilities that would permit infiltration of all the runoff generated on the Project Site, would result in elimination of the majority of discharge of stormwater runoff from the site. In terms of its effect on the City's stormwater facilities, it would, to the same degree as the Proposed Project, reduce the amount of runoff discharged to the City's combined sewer system, reducing the number of sewer overflows and reducing street flooding.

Implementation of Project Variant B would reduce the amount of runoff discharged to the combined sewer system, but by a lesser amount than the Proposed Project. As discussed above under "Operational Impacts on Water Quality," p. V.O.12, this Variant B would result in fewer sewer overflows compared to the Proposed Project, but reduced frequency compared to existing conditions.

Therefore, the Proposed Project, including Variants A and B, would not exceed the capacity of the City's drainage system or contribute substantial additional sources of polluted runoff to the combined sewer system, and the impact of the project would be less than significant and no mitigation is required.

Impact HY-6: The Proposed Project would not place housing or structures within a 100-year flood hazard area or expose people or structures to a significant risk involving flooding. *(No Impact)* (Criteria O.g, O.h, O.i)

The Project Site is not within or adjacent to a mapped 100-year flood hazard area as mapped by the 2007 Preliminary Flood Insurance Rate Maps for San Francisco. The Project Site is not within an area prone to surface flooding as identified by the Community Safety Element of the *San Francisco General Plan*. According to Map 7, Inundation Areas Due to Reservoir Failure, of the Community Safety Element of the *General Plan*,[19] the Project Site is not within an area of inundation. Further, as described above under "Proposed Project and Stormwater Management System," pp. V.O.9-V.O.10, the drainage system proposed for the Project Site would permit substantially more infiltration than existing conditions allow. Approximately 85 percent of the runoff on the Project Site would infiltrate into the Upper Westside Basin. Infiltration would prevent flooding on or off site during the majority of storms. Therefore, the Proposed Project would not place housing within a 100-year flood hazard area, nor would it place structures that would impede or redirect flood flows within a 100-year flood hazard area, and the impact of the Proposed Project on flooding would be less than significant. Therefore, no mitigation is required. Neither of the Project Variants would have an effect on the susceptibility of the Project Site to flooding.

[19] San Francisco Planning Department, *San Francisco General Plan*, adopted April 1997.

Impact HY-7: The Proposed Project would not be susceptible to inundation by seiche, tsunami, or mudflow. *(No Impact)* (Criterion O.j)

According to Map 6, 20-foot tsunami run-up map, of the Community Safety Element of the *San Francisco General Plan*, the Project Site is not within a possible area of tsunami inundation. Therefore, the impact of the Proposed Project would be less than significant. Neither of the Project Variants would affect the susceptibility of the Project Site to tsunamis. Therefore, no mitigation is required.

Impact HY-8: Construction of the Proposed Project would not contribute significantly to cumulative impacts on hydrology and water quality. *(Less than Significant)*

Several other development projects in the vicinity of the Project Site have been formally proposed or approved, are under consideration by developers, or are reasonably forseeable, including 800 Brotherhood Way, 77-111 Cambon Drive, 700 Font Boulevard, 445 Wawona Street (the Arden Wood site), the 2007-2020 SFSUCMP, Stonestown Galleria, and 1150 Ocean Avenue. Cumulatively, buildout of the Proposed Project, in combination with these other residential and mixed-use developments proposed on nearby sites ("cumulative projects"), would contribute to construction and operation impacts on hydrology and water quality.

Construction

Construction of the Parkmerced Project and the other cumulative projects would increase sediment and other pollutants entrained in runoff. Each project sponsor would implement a Storm Water Pollution Prevention Plan (SWPPP) that would include provision for facilities and practices to prevent spills of fuels and chemicals and to control the release of chemicals to surface water. Implementation of the SWPPPs would reduce pollution of surface water throughout the construction phases of the proposed projects.

Operation

Stormwater Runoff

As discussed on pp. V.O.9-V.O.10, the Project's proposed hydrology network system would capture and filter runoff through a series of on-site bioswales, streams, ponds, and other natural filtration systems intended to retain, detain, and infiltrate conveyed runoff. As a result, the Parkmerced Project, together with other cumulative projects, would not increase the total amount of stormwater runoff. While the total impervious surface area would increase, diversion of stormwater runoff from the combined sewer system by the Parkmerced and SFSU projects would result in a net decrease in runoff. Parkmerced and other cumulative projects would result in increase in the amount of fuel, lubricants, tire wear, fallout from vehicle exhaust, and nutrient runoff from landscaped areas that would contribute to the pollutant load in stormwater runoff.

These pollutants would be carried to the combined sewer system and flow to the Oceanside Water Pollution Control Plant where treatment would remove these pollutants to the levels required in the City's National Pollutant Discharge Elimination System permit.

Sewer Overflows

Parkmerced would divert all of its stormwater runoff away from the combined sewer system, and SFSUCMP, the other large project in the vicinity, would also divert a portion of its stormwater runoff. Thus, although the total runoff from the other cumulative projects would increase, the amount of runoff directed to the combined sewer system would decrease, which would reduce the volume of wet weather flows in the Westside system and reduce the potential for overflows.

Flooding

The combined sewer system carries both sanitary sewage and stormwater runoff, which, because of the capacity of the sewer system, can result in flooding during storms. While recent improvements to the local sewers have increased the capacity of these sewers upstream, more flow now reaches the downstream portions of the sewers. Additional flow into these sewers during wet weather would further reduce the margin of safety. While Parkmerced and SFSUCMP could improve the performance of the sewers in wet weather because both developments plan to direct stormwater runoff away from the combined sewer system, the other cumulative projects would likely increase the amount of stormwater runoff to the sewers. Therefore, cumulative development could increase the potential for flooding during periods of heavy rainfall.[20]

In conclusion, while the cumulative projects would prevent degradation of water quality by implementing SWPPPs for control of runoff during construction, would not discharge runoff that could not be treated by the OSP, and would reduce the likelihood of sewer overflows, the cumulative projects would increase the potential for flooding during periods of heavy rainfall. However, because of its diversion of runoff from the sewer system, the Proposed Project would not contribute significantly to cumulative impacts on hydrology and water quality.

[20] Hydroconsult Engineers, p. 15.

P. HAZARDS AND HAZARDOUS MATERIALS

This section discusses the types of foreseeable impacts related to hazardous materials and physical hazards that could result from the construction and occupancy of the Proposed Project. It provides definitions of a few basic terms and describes existing conditions at the site. It also discusses routine hazardous materials that would likely be used in construction and operation of the Proposed Project.

SETTING

REGULATORY FRAMEWORK

Hazardous materials are materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a substantial present or potential hazard to human health and safety or to the environment if released to the workplace or environment.[1] Hazardous wastes are wastes that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment, when improperly treated, stored, transported, disposed of, or managed.[2]

Table V.P.1 presents an overview of selected major federal, state, and local laws and regulations designed to minimize the potential adverse health and environmental effects of hazardous materials and wastes. The table also discusses implementing agencies and examples of particular regulatory programs.

SITE BACKGROUND

As described in the archaeological report,[3] historical records suggest that the Lake Merced area was used by a Spanish Mission as a corral for livestock in the late 18th and early 19th centuries. Subsequently, Mexican ranchers used it for cattle grazing. The Project Site continued to be used for cattle after political control shifted from Mexico to the United States. In the early part of the 20th century, the Spring Valley Water Company owned the land.[4] A water pipeline from the lake crossed the southwestern corner of the Project Site.[5] One of the first uses of the land in the 20th

[1] California Health and Safety Code, section 25501(h).
[2] California Health and Safety Code, section 25117.
[3] Archeo-Tec, "Archaeological Research Design and Treatment Plan, Parkmerced Project, City and County of San Francisco, California," November 2009 (hereinafter referred to as "Archaeological Research Design and Treatment Plan"), p. 26.
[4] Archaeological Research Design and Treatment Plan, p. 43.
[5] Archaeological Research Design and Treatment Plan, p. 39.

Table V.P.1: Overview of Selected Health and Safety Laws and Regulations

Hazardous Materials Management	State, federal, and local laws require planning to ensure that hazardous materials are properly used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to minimize injury to health or the environment. These laws require hazardous materials users (businesses) to prepare written plans, such as Hazard Communications Plans, Hazardous Materials Business Plans (called "registrations" in San Francisco), and Chemical Hygiene Plans. Laws and regulations require hazardous materials users to store hazardous materials appropriately and to train employees to manage these materials safely. A number of agencies participate in enforcing hazardous materials management requirements, but the San Francisco Department of Public Health is the agency most involved in overseeing hazardous materials management within San Francisco. The Department of Public Health is the Certified Unified Program Agency in San Francisco. Businesses that handle certain very hazardous substances must undertake a systematic analysis of their operations, study the potential consequences of possible worst-case accidents, and prepare Risk Management Plans to reduce apparent risks. In San Francisco, this process is overseen by the Department of Public Health, which determines compliance with Accidental Release Prevention program requirements. Risk Management Plans are to be made available to the public for review. In addition, the State Office of Emergency Services administers the California Emergency Plan to respond to hazardous materials incidents and to coordinate the responses of other agencies, including the San Francisco Public Health and Fire Department. Both departments provide hazardous materials emergency response services, if needed.
Building and Fire Safety	The San Francisco Building and Fire Codes amend and otherwise incorporate the California Building and Fire Codes. These laws specify management practices for flammable materials, including some packaging and containment requirements. They also set forth appropriate construction standards (e.g., fire separations and fire suppression systems) depending on occupancy classifications. The San Francisco Fire Department and Building Inspection review proposed building design plans to ensure compliance with Fire and Building Code requirements.
Hazardous Waste Management	The California Environmental Protection Agency, Department of Toxic Substances Control regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. Laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner intended to protect human health and the environment. The San Francisco Department of Public Health enforces on-site waste management requirements that apply to hazardous waste generators, such as requirements for secondary containment around stored wastes to prevent environmental contamination in the event of a spill. The Department of Public Health also inspects for compliance with state permitting requirements applicable to facilities conducting hazardous waste operations subject to permit by rule, conditional exemption, or conditional authorization.
Hazardous Materials Transportation	The U.S. Department of Transportation regulates hazardous materials transport between states. Within California, the state agencies with primary responsibility for enforcing federal and state regulations, and for responding to transportation emergencies, are the California Highway Patrol and the California Department of Transportation. Together, federal and state agencies determine driver training requirements, load labeling procedures, and container specifications. Although certain requirements apply to the transport of hazardous materials, requirements for transportation of hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Table V.P.1 (continued)

Occupational Safety	Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health (Cal/OSHA) and the federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of hazardous materials in the workplace. Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices. Among other requirements, Cal/OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans.

Source: Turnstone Consulting

century was as a golf course.[6] In 1941, Metropolitan Life Insurance Company purchased the land that had been leased to the Ingleside Public Golf Course, and began to develop it into a residential neighborhood under the "ideal city" concept.[7] MetLife completed the development in 1951. In sum, the historical uses of the Project Site include ranching, watershed, golf course, and residential.

The current Parkmerced Project Site is an apartment complex that includes 3,221 residential units on 152 acres. The complex consists of 11 towers and 170 two-story buildings (townhouses) surrounded by lawns and courtyards. There are several landscaped boulevards and secondary streets. Other facilities include three above-grade centralized parking garages,[8] carports attached to townhouses, a leasing and operations office, a private pre-school/day care facility, and a maintenance facility adjacent to Lake Merced Boulevard. The maintenance facility consists of a central Maintenance Building and storage sheds. The facility lies on the western border of the site, near Vidal Drive and Higuera Avenue.

There are eight existing schools[9] within one-quarter mile of the Parkmerced site. In addition, a day-care center operates within Parkmerced and would be replaced with a new Pre K-5 school and day care facility. All of these schools are currently surrounded by residential properties.

The Project Site is not located within an airport land use plan area. The nearest public airport, San Francisco International Airport, is located about 7 miles to the southeast. The Project Site is not located within the vicinity of a private airstrip.

[6] Archaeological Research Design and Treatment Plan, p. 46.
[7] Archaeological Research Design and Treatment Plan, p. 52.
[8] Due to existing grade changes, portions of these parking garages are constructed partially underground.
[9] Public schools within one-quarter mile of the Project Site are San Francisco State University and Jose Ortega Elementary School. Several private schools within one-quarter mile are located along Brotherhood Way: Bridgemont High School and Junior High School, Armenian School, St. Thomas More School, Holy Trinity Greek Orthodox Church, Congregation Beth Israel-Judea, and Brandeis Hillel Day School.

HAZARDOUS MATERIALS ON THE PROJECT SITE

Environmental Site Assessments (ESAs) are professional investigations that characterize existing conditions related to hazardous materials and hazardous waste contamination at a site. A *Phase I ESA* was prepared for the Parkmerced Project Site in 2005.[10] The *Phase I Report* describes current and prior uses of the property, includes a review of environmental agency databases and records, provides site reconnaissance observations, and describes potential soil and groundwater contamination issues. The findings of the ESA are discussed below. Several subsequent activities, including a limited *Phase II ESA*, have addressed issues raised in the *Phase I Report*. The existing *potential* sources of hazardous materials on the Project Site include:

- Routine hazardous materials, such as paints, solvents, cleaners, and diesel fuel, stored and use in residences, the maintenance facility, and other buildings;
- Soil contamination;
- Underground and above-ground storage tanks;
- Asbestos-containing building materials;
- Lead-based paint on building exteriors and interiors; and
- Equipment containing polychlorinated biphenyls (PCBs).

Each of these potential sources of hazardous materials is discussed below.

Routine Transport, Use, and Disposal of Hazardous Materials and Accidental Release

Use and storage of hazardous materials on the site is typical of a residential urban neighborhood. Typical household hazardous materials include solvents (e.g., degreasers, paint thinners, and aerosol propellants), paints (both latex and oil), oils (e.g., motor oil and hydraulic oil), fuels (e.g., gasoline and diesel), acids and bases (e.g., automobile battery fluids, swimming pool chemicals, and many cleaners), disinfectants, metals (e.g., thermometers, batteries, and photographic chemicals), and pesticides and herbicides. In addition, older fluorescent light fixtures usually contain PCBs, and fluorescent light bulbs may contain mercury. Similarly, small quantities of hazardous materials are used in the operation of the leasing office and day care facility.

The property management company uses routine chemicals such as cleaning compounds, paints, thinners, gasoline, and joint compounds. These materials are stored at each of the four maintenance departments around the Project Site.[11] The property management company also likely uses or formerly used pesticides and herbicides for landscaping maintenance.

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[10] EBI Consulting, *Phase I Environmental Site Assessment Report, The Villas Parkmerced, 3711 Nineteenth Avenue, San Francisco, California*, June 29, 2005 (*Phase I Report*). A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

[11] *Phase I Report*, p. 7.

The Maintenance Building has a waste storage room. The *Phase I Report* notes that in 2005 the room contained flammable liquids, waste motor oil, used car batteries, empty propane tanks, and typical household hazardous waste (paints, cleaners, spray cans, etc.).[12] Most of the materials were stored in 55-gallon drums on plastic secondary containment units, with household hazardous wastes stored in plastic-lined boxes on wood pallet(s). The materials were reported to be from tenants, abandoned in their units or storage lockers upon leaving, or abandoned elsewhere on the property. A licensed waste hauler (at the time, Romic Environmental) periodically removes the wastes. The *Phase I Report* found no indication of leaks, spills, or improper handling of petroleum or hazardous substances that might affect the environmental condition of the Project Site.[13]

The Project Site currently has 11 emergency diesel generators. There are diesel tanks mounted on skids attached to the generators, but there are no additional, back-up diesel tanks. Properly mounted and maintained diesel tanks for emergency generators do not pose a significant threat of fire or explosion. Similarly, the use of natural gas in existing boilers does not pose a significant threat of fire or explosion.

Routine use of the hazardous materials described above results in small amounts of air emissions and dermal contact; such releases should generally not cause adverse health effects if product instructions are followed. Similarly, routine use of hazardous materials results in hazardous wastes.

Soil and Groundwater Investigations

Environmental protection agencies, such as the U.S. Environmental Protection Agency (EPA) and California Department of Toxic Substances Control, maintain databases of contaminated sites (referred to as "listed sites") and progress regarding their cleanup. A data search firm, Environmental Data Resources, Inc., conducted a regulatory database review for the Parkmerced site, the results of which were incorporated in the *Phase I Report*. The review found that the Parkmerced site was not a listed site in any regulatory database as having any "open" environmental contamination cases. Review of nearby listed sites indicated that none of the sites had the potential to affect the soil or groundwater conditions at Parkmerced.

In 2005, ENVIRON, a consulting firm, conducted a limited Phase II investigation to assess potential environmental concerns associated with former operations, chemical storage, and chemical use at the Maintenance Building (345 Vidal Drive) and a fan room in the basement of a parking garage at 19 Higuera Avenue (Higuera garage).[14] Soil borings and samples were taken in

[12] *Phase I Report*, p. 7.
[13] *Phase I Report*, p. 7.
[14] Letter from James McNally, Principal, and James Bunker, Senior Manager, ENVIRON, to Aric Shalev, Rockpoint Group, and Peter Rosenberg, Stellar Management, re: Report for Limited Phase II

the following areas: sheds, waste/chemical storage area, waste oil storage area, former gardeners' shop, hydraulic lift area, former plumbing shop area, exterior property storm drain, former stove shop area, former handyman shop area, former paint shop area, stained asphalt near the Maintenance Building, and the garage fan room (used for storage of paint and chemicals).[15]

Soil samples were analyzed for hazardous substances, including motor oil and gasoline (analyzed as total petroleum hydrocarbons, or TPH), volatile organic compounds (typically solvents), pesticides, PCBs, and heavy metals. Groundwater was not encountered in any soil boring, and groundwater was not analyzed.

Detectable concentrations of hazardous materials were found in 5 out of 28 samples. Materials found were Freon 13, TPH-oil, arsenic, and the pesticides heptachlor, lindane, and chlordane. ENVIRON concluded that the soil sampled at the site showed minimal evidence of chemical releases from the former maintenance activities in the vicinity of the Maintenance Building and the fan room.[16] The concentrations of chemicals detected do not pose a threat to human health or the environment based on U.S. Environmental Protection Agency Region IX health-based screening values. Further, the concentrations are below levels that typically may lead to a requirement for cleanup by regulatory agencies, and thus are not considered significant environmental concerns. ENVIRON opined that "it is unlikely that significant quantities or concentrations of these compounds were released and/or would have migrated to deeper soils, given the low concentrations detected . . ."[17]

Underground and Above-Ground Storage Tanks on the Site

Before 1994, there were 32 underground storage tanks (USTs) for diesel fuel or gasoline on the Parkmerced site. All 32 tanks had been removed by 1995.[18] Soil removal actions were conducted at many of the tank locations; groundwater was not encountered in any of the excavations. A soil vapor extraction system is typically used to remove volatile organic compounds or gasoline from soil. A soil vapor extraction system was installed at or near the westernmost parking garage (i.e., the Higuera parking garage[19]) to remediate soil contamination that extended to a depth of 34 feet. In 1995, a follow-up report concluded that there had been no significant impact to soil or groundwater at the site as a result of the 32 former USTs. There are no known, remaining USTs

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Environmental Site Assessment, Sept. 16, 2005, p. 1 (*Phase II Report).* A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

15 *Phase II Report*, pp. 2-3.

16 *Phase II Report*, p. 4.

17 *Phase II Report*, p. 4.

18 Letter from Paula Stewart, Environmental Health Inspector, Hazardous Materials Div., UST Closure Section, San Francisco Department of Public Health, to Helmsley-Spear, Inc., dated July 25, 1995. A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

19 See Figure III.2: Existing Site Plan, in Chapter III, Project Description, p. III.6.

on the property.

The *Phase I Report* found two groundwater monitoring wells near the Maintenance Building. They were apparently installed for an investigation of possible groundwater contamination following the removal of the USTs. There was no evidence of groundwater contamination. The Project Sponsor indicated that all monitoring wells have been closed.

The *Phase I Report* found that the maintenance facility had one inactive above-ground storage tank for gasoline (in a covered area north of the Maintenance Building). The tank had formerly been used to fuel the maintenance and service vehicles operated by the Parkmerced management company. There was no evidence of leakage at the time of the site visit, and the *Phase I Report* recommended that the tank should be removed. The Project Sponsor indicated that the tank has been removed.

Asbestos-Containing Materials

Asbestos has been widely used for many years in many building materials. Loose insulation, ceiling panels, and brittle plaster are potential sources of friable (easily crumbled or pulverized) asbestos. Friable asbestos fibers from these materials are a health threat when they become airborne. Nonfriable asbestos is generally bound to other materials such that it does not become airborne under normal conditions. This kind of asbestos is usually found in building materials such as linoleum, flooring adhesives, and insulation. When cut or ground, such materials may release asbestos.

Because of potential adverse health effects such as lung cancer and asbestosis, asbestos is regulated both as a hazardous air pollutant and a potential worker safety hazard. State Occupational Safety and Health Administration (Cal/OSHA) regulations prohibit asbestos emissions during demolition and construction activities, and require various precautions and safe work practices to protect workers from friable asbestos inhalation.

The *Phase I Report* states that asbestos-containing materials (ACMs) were present in thermal system insulation and various miscellaneous materials such as roofing, flooring materials, and insulation materials.[20] Over the past several years, the Parkmerced management has implemented an Asbestos Operations and Management program (prepared in 1999) to maintain and dispose of ACMs. Maintenance personnel periodically monitor the condition of ACMs and repair or dispose of ACMs as needed. When maintenance is needed that would disturb ACMs, an asbestos removal contractor is hired to remove the ACMs before work continues.

[20] *Phase I Report*, p. 8.

Lead-Based Paint

Lead-based paint was widely used before the use of lead in household paint was banned by the U.S. EPA in 1978. Lead can cause gastrointestinal and central nervous system effects in adults. However, the primary concern with lead-based paints in residences is children eating paint chips. Lead can cause anorexia, vomiting, malaise, convulsions, and possibly, permanent brain damage, in children. Federal regulations require that lead-based paint be abated in residential buildings with children under six years old.

Because all of the structures on the Project Site were constructed prior to 1978, lead-based paint is likely present beneath newer, more recently applied paint. A 1999 survey of 1,055 locations within the Parkmerced complex confirmed the presence of lead-based paint. Lead-based paint was present in building interiors on walls, window sills, window frames, doors, door frames, and stairs, and on exterior walls, doors, door frames, and stairs. Over the past several years, Parkmerced management has been performing an Operations and Maintenance Program for Lead-Based Paint, which includes removing lead-based paints and repainting with non-lead-based paints. The *Phase I Report* concluded that the program was appropriate to manage lead-based paint risks.[21]

Major Equipment Containing Polychlorinated Biphenyls (PCBs)

Electric transformers historically contained PCBs. Several underground electric transformer vaults are located on the Project Site. In 2005, the equipment in the vaults was upgraded with equipment that does not contain PCBs.[22]

Hydraulic elevator lifts often contain PCBs. There was one such lift in the Maintenance Building. According to property management representatives, this lift has since been removed.

RELATIONSHIP TO EMERGENCY RESPONSE PLAN OR EVACUATION PLAN

Parkmerced has a Safety and Evacuation Plan that is updated as elements of buildings change or are renovated. Management also maintains a "disabled residents list," which is updated monthly.

EXISTING FIRE RISKS

Parkmerced does not have any particular characteristics that increase fire risks above a typical residential community.

[21] *Phase I Report*, p. 11.
[22] *Phase I Report*, p. 13.

IMPACTS

SIGNIFICANCE CRITERIA

The City and County of San Francisco has not formally adopted significance thresholds for impacts related to hazards and hazardous materials. The Planning Department Initial Study Form provides a framework of topics to be considered in evaluating potential impacts under CEQA. Implementation of the project could have significant impacts related to hazards and hazardous materials if it were to:

- P.a Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- P.b Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- P.c Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- P.d Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- P.e For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- P.f For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- P.g Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- P.h Expose people or structures to a significant risk of loss, injury or death involving fires.

The Project Site is not within an airport land use plan or within 2 miles of an airport or a private airstrip, nor is it listed as hazardous materials site. Therefore, these topics are not discussed further.

IMPACT EVALUATION

Impact HZ-1: The Proposed Project could create a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. *(Less than Significant)* (Criterion P.a)

Routine Transport, Use, and Disposal of Hazardous Materials and Accidental Release

Project construction and operations could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Because the contractors and owners must comply with federal, state, and local laws and regulations regarding hazardous materials and hazardous wastes, as described below, there would be less-than-significant impacts to public health and safety. Therefore, mitigation would not be required.

Impact HZ-2: The Proposed Project could create a hazard to the public or the environment through the accidental release of hazardous materials into the environment. *(Less than Significant with Mitigation)*. (Criterion P.b)

Demolition

The Proposed Project would involve demolition and removal of existing buildings and renovation of parts of buildings proposed to be retained. If hazardous materials are present in building materials that would be disturbed during construction phases that involve demolition or renovation, implementation of the Proposed Project could result in an accidental release of hazardous materials, potentially affecting the public or the environment.

Asbestos-Containing Materials

Any activity that involves cutting, grinding, or drilling of ACMs during building renovation or demolition could release asbestos fibers, unless proper precautions are taken. Federal, state, and local regulations require testing of building materials that may contain asbestos prior to demolition or renovation. Any testing, removal, or disturbance of ACMs must be performed by licensed, qualified asbestos abatement personnel.

State law requires an applicant to demonstrate compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos, prior to a local agency (in this case, the City's Department of Building Inspection) issuing a permit.[23] The local office of Cal/OSHA must be notified of planned asbestos abatement.

The Bay Area Air Quality Management District (BAAQMD) has authority to regulate airborne pollutants, including asbestos, through both inspection and enforcement, and is to be notified 10

[23] California Health and Safety Code, Section 19827.5.

days in advance of any proposed demolition or abatement work. The BAAQMD inspects any removal operation for which a complaint has been received.

Asbestos abatement contractors must follow state regulations.[24] Asbestos removal contractors must be certified by the Contractors Licensing Board of the State of California.

Compliance with the regulations and procedures described above would ensure that any potential impacts due to asbestos would be reduced to a less-than-significant level.

Lead Paint

Demolition must comply with Chapter 36 of the San Francisco Building Code, Work Practices for Exterior Lead-Based Paint. Where there is any work that may disturb or remove lead paint on the exterior of any building built prior to 1979, Chapter 36 requires specific notification and work standards, and identifies prohibited work methods and penalties. Any person performing work subject to the ordinance shall make all reasonable efforts to prevent migration of lead paint contaminants beyond containment barriers during the course of the work, and any person performing regulated work shall make all reasonable efforts to remove all visible lead paint contaminants from all regulated areas of the property prior to completion of the work. The ordinance contains provisions regarding Department of Building Inspection enforcement, including inspection and sampling, and describes penalties for non-compliance with the requirements of the ordinance.

Lead paint is present in the existing buildings that would be demolished. Compliance with the regulations and procedures described below would ensure that any potential impacts due to lead-based paint would be reduced to a less-than-significant level.

Waste Disposal

State law (California EPA, Department of Toxic Substances Control; see "Hazardous Waste Management" in Table V.P.1, pp. V.P.2-V.P.3) requires appropriate management and/or disposal of hazardous wastes from demolition and construction activities, including provisions for disposal of ACMs, lead-based paint, spent fluorescent light tubes, etc. Therefore, impacts would be less than significant.

Excavation

As described in Chapter III, Project Description, under "Proposed Grading Plan," p. III.52, the Proposed Project would involve substantial excavation, specifically for construction of the below-grade parking garages. The Grading Plan provides as much on-site reuse as possible, and most of

[24] California Code of Regulations, title 8, section 1529, and sections 341.6 through 341.14.

the excavated soil would be stockpiled and reused as fill throughout the Project Site. A portion the excavated, clean soil would be taken off-site to local entities identified in the Grading Plan.

As described above under Setting, "Soil and Groundwater Investigations," pp. IV.P.5-IV.P.6, the *Phase I Report* found that the Parkmerced site was not a listed site in any regulatory database as having any "open" environmental contamination cases. A limited Phase II investigation was conducted, and soil samples showed minimal evidence of chemical releases from the former maintenance activities in the vicinity of the Maintenance Building and the fan room at the Higuera parking garage. The concentrations of chemicals detected do not pose a threat to human health or the environment based on U.S. Environmental Protection Agency Region IX health-based screening values. Further, the concentrations are below levels that typically may lead to a requirement for cleanup by regulatory agencies, and thus are not considered significant environmental concerns.

Although soil contamination in significant amounts is not expected, in case previously unidentified soil contaminants exist, and in the abundance of caution, Mitigation Measures M-HZ-1 and M-HZ-2 provide a program of soil testing and management. In addition, windblown soil generated by construction activities would be managed and reduced through the required compliance by the Project Sponsor with the San Francisco Construction Dust Control Ordinance, as discussed under Impact AQ-1 in Section V.G, Air Quality, pp. V.G.19-V.G.22.

Mitigation Measure M-HZ-2A: Hazardous Materials - Testing for and Handling of Contaminated Soil

The Proposed Project would be carried out in four major Phases over a 20-year construction period.[25] Within the geographic boundaries to be redeveloped within each Phase, the Project Sponsor shall, if appropriate, identify large, planned areas of redevelopment. For the purpose of this mitigation measure, each such area is referred to as a "Sub-Phase." The steps below shall be taken for each Sub-Phase. If the Project Sponsor does not identify such areas within a Phase, then each step shall be taken for the geographic boundaries of the entire Phase at once.

Step 1: Soil Testing

Soil testing would be done incrementally over the 20-year construction period, including pre-testing of each Sub-Phase, prior to excavation and/or soil disturbance. Prior to obtaining building permits for a particular Sub-Phase, the Project Sponsor shall hire a consultant to collect soil samples (borings) from selected locations in the work area in which soil would be disturbed and/or excavated. (This initial soil sampling and reporting shall be done prior to excavation, but additional soil testing from on-site soil stockpiles may also be required, if there are indications [e.g., odors, visible staining] of contamination in the excavated soil.)

[25] See Section III.E, Project Phasing and Construction, pp. III.54-III.65.

The soil samples shall be tested for these Compounds of Concern: total lead, petroleum hydrocarbons, volatile organic compounds (VOCs), and four heavy metals: chromium, nickel, copper, and zinc. The consultant shall analyze the soil borings as discrete, not composite samples. The consultant shall prepare a report on the soil testing for the Compounds of Concern that includes the laboratory results of the soil testing and a map that shows the locations from which the consultant collected the soil samples.

The Project Sponsor shall submit the report on the soil testing for the Compounds of Concern for the Sub-Phase and a fee of $501 in the form of a check payable to the San Francisco Department of Public Health (DPH), to the Hazardous Waste Program, Department of Public Health, 1390 Market Street, Suite 210, San Francisco, California 94102. The fee of $501 shall cover three hours of soil testing report review and administrative handling. If additional review is necessary, DPH shall bill the Project Sponsor for each additional hour of review over the first three hours, at a rate of $167 per hour. These fees shall be charged pursuant to Section 31.47(c) of the San Francisco Administrative Code. DHP shall review the soil testing program to determine whether soils on the Project Site are contaminated with any of the Compounds of Concern at or above potentially hazardous levels.

Step 2: Preparation of Site Mitigation Plans

Incrementally over the 20-year construction period, for each Sub-Phase, prior to beginning demolition, excavation, and construction work for that area, the Project Sponsor shall prepare a Site Mitigation Plan (SMP). The SMP for the Sub-Phase shall include a discussion of the level of contamination of soils by Compounds of Concern, if any, based on the soils testing in Step 1. The SMP shall set forth mitigation measures for managing contaminated soils on the site, if any, including but not limited to: 1) the alternatives for managing contaminated soils on the site (e.g., encapsulation, partial or complete removal, treatment, recycling for reuse, or a combination); 2) the preferred alternative for managing contaminated soils on the site and a brief justification; and 3) the specific practices to be used to handle, haul, and dispose of contaminated soils on the site. The SMP for each Sub-Phase shall be submitted to the Department of Public Health (DPH) for review and approval. A copy of the SMP shall be submitted to the Planning Department to become part of the case file. Additionally, the DPH may require confirmatory samples for the project site.

Step 3: Handling, Hauling, and Disposal Contaminated Soils

(a) Specific work practices: The construction contractor shall be alert for the presence of contaminated soils during excavation and other construction activities on the site (detected through soil odor, color, and texture and results of on-site soil testing), and shall be prepared to handle, profile (i.e., characterize), and dispose of such soils appropriately (i.e., as dictated by

local, State, and federal regulations, including OSHA work practices) when such soils are encountered on the site.

(b) Dust suppression: Soils exposed during excavation for site preparation and project construction activities shall be kept moist throughout the time they are exposed, both during and after work hours.

(c) Surface water runoff control: Where soils are stockpiled, visqueen shall be used to create an impermeable liner, both beneath and on top of the soils, with a berm to contain any potential surface water runoff from the soil stockpiles during inclement weather.

(d) Soils replacement: If necessary, clean fill or other suitable material(s) shall be used to bring portions of the Project Site, where lead-contaminated soils have been excavated and removed, up to construction grade.

(e) Hauling and disposal: If soils are contaminated such that they must be hauled off-site for treatment and/or disposal, contaminated soils shall be hauled off the Project Site by waste hauling trucks appropriately certified with the State of California and adequately covered to prevent dispersion of the soils during transit, and shall be disposed of at the permitted hazardous waste disposal facility registered with the State of California.

Step 4: Preparation of Closure/Certification Report for Each Sub-Phase

After excavation and foundation construction activities are completed for a particular Sub-Phase, the Project Sponsor shall prepare and submit a closure/certification report to DPH for review and approval for that area. The closure/certification report shall include the mitigation measures (if any were necessary) in the SMP for handling and removing contaminated soils, if any, from the Project Site, and if applicable, whether the construction contractor modified any of these mitigation measures, and how and why the construction contractor modified those mitigation measures.

Mitigation Measure M-HZ-2B: Hazards (Decontamination of Vehicles)

If, for any Sub-Phase, the San Francisco Department of Public Health (DPH) determines that the soils in that area are contaminated with contaminants at or above potentially hazardous levels, all trucks and excavation and soil handling equipment working in that area shall be decontaminated following use and prior to removal from the site. Gross contamination shall be first removed through brushing, wiping, or dry brooming. The vehicle or equipment shall then be washed clean (including tires). Prior to removal from the work site, all vehicles and equipment shall be inspected to ensure that contamination has been removed.

Construction

Hazardous Materials Use

Many types of hazardous materials would be used during construction. Construction equipment such as trucks, bulldozers, and graders would use gasoline and diesel fuel and various chemicals for vehicle maintenance (oils, battery fluids). Chemicals used in constructing buildings, roadways, and other facilities would include but not be limited to solvents, paints, varnishes, other sealants, asphalt, disinfectants, and cleaners. For landscaping, pesticides, herbicides, and fertilizers would be used. Such materials would be stored and used at the construction sites and staging areas. In addition, such chemicals would be transported to and from the site. Routine air emissions would occur. Without proper precautions, an accidental release of hazardous materials could enter the City stormwater collection system.

Potential impacts would be reduced to a less-than-significant level in several ways. First, contractors are obligated under federal, state, and local laws to properly label, handle, store, and use hazardous materials and properly manage hazardous wastes (see "Hazardous Materials Management" in Table V.P.1, pp. V.P.2-V.P.3).

Second, as discussed in Section V.N, Hydrology and Water Quality, the Regional Water Quality Control Board requirements seek to control contaminated runoff. The contractor would have to prepare a Storm Water Pollution Prevention Plan, which would specify handling, storage, and spill response requirements for hazardous materials used during construction. Based on these requirements, use of hazardous materials during construction would be controlled and no significant impact would occur.

Toxic Air Contaminants

Construction equipment and vehicles, along with construction activities, would emit toxic air contaminants, including particulate matter in diesel exhaust. Refer to Section V.G, Air Quality, for a discussion of these pollutants.

Operation

Hazardous Materials Use

During operation, the Proposed Project would involve routine residential use of hazardous materials, as described above. The property manager would continue to use routine herbicides, pesticides, and fertilizers for landscaping. The difference between existing conditions and conditions with the Proposed Project would be the quantities of hazardous materials used and the quantities of hazardous waste generated, because of the increase in the number of dwelling units and addition of other new facilities.

The hazardous products would be labeled to inform users of risks and to instruct them in proper disposal methods. Most of these materials are consumed or neutralized through use, resulting in little hazardous waste. Businesses are required by law to ensure employee safety by identifying hazardous materials, providing safety information, and adequately training workers in hazardous material handling. For these reasons, hazardous material use by the occupants of the Proposed Project would not pose a substantial hazard, and the impact would be less than significant.

Maintenance Building

The Proposed Project would include an approximately 100,000-gsf Maintenance Building (about 75,000 gsf larger than the existing Maintenance Building). It may house trucks, lawn mowers, and other equipment for landscaping and may also provide space for maintenance equipment and activities. There would likely be hazardous materials storage and hazardous waste storage prior to disposal. Parkmerced management would have to comply with federal, state, and local laws and regulations, as described above, regarding hazardous activities in the Maintenance Building and elsewhere. Assuming such compliance, impacts of the storage and use of hazardous materials would be less than significant.

District Energy Plants and Emergency Generators

Under the Proposed Project's District Energy Plant scheme, now under consideration, there would be approximately four decentralized plants, with boiler rooms that would range in size between 800 to 1,000 gsf. The locations of the boiler rooms are still under consideration.

The boilers would use natural gas for primary fuel. The Project Sponsor has determined that the boilers would not have the dual-fuel capability to also burn diesel fuel. However, the boilers may have the capacity to burn bio fuel or bio mass.

The Proposed Project would have emergency generators. The Project Sponsor has not yet determined if the generators would burn natural gas and/or diesel fuel. Therefore, it is also not known whether the generators would have diesel fuel storage tanks. Even if there would be diesel fuel tanks, with modern design and construction, the risk of oil release, fire, and explosion would be low.

Similarly, the use of natural gas in boilers and/or generators, with modern design and construction, would not entail a significant impact regarding the risk of fire or explosion.

Organic Farm and Community Gardening

The approximately 2-acre organic farm and community garden would be near the southern edge of the site, between Gonzalez Drive and Brotherhood Way. Fruits and vegetables grown at the organic farm and community gardens would be for the residents and businesses of Parkmerced.[26] The Farm Service Building would lie along Bucareli Drive.[27]

Based on the history of land uses, and the *Phase I* and *Phase II Reports*, the soil at Parkmerced does not appear to be contaminated. Even at the existing Maintenance Building, the soil is not contaminated to a level of concern. Therefore, growing fruits and vegetables in the soil at Parkmerced would not present a health risk to persons consuming the food.

While pesticides and herbicides would not be used on the organic farm, residents using the community gardens might use relatively small amounts of routine pesticides, herbicides, and fertilizers, compared to commercial agriculture. Assuming the chemicals would be used according to directions and lawfully, no significant health and safety impact would arise.

The Proposed Project would not create a significant hazard to the public or environment through the accidental release of hazardous materials. Therefore, this impact would be less than significant. No mitigation would be required.

Impact HZ-3: The Proposed Project could result in hazardous emissions or use of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. ***(Less than Significant)*** **(Criterion P.c)**

The Parkmerced community's routine use of hazardous materials near schools has not resulted in known health and safety risks. The *Phase I* and *Phase II Reports* provide no evidence of accidental releases, or airborne releases, of hazardous materials.[28] No complaints have been received by Parkmerced LLC within the past 10 years regarding hazardous emissions or the handling of hazardous materials or waste at the Project Site, including the on-site day care center

[26] A "farmers' market" has recently existed at Parkmerced; perhaps fruits and vegetables grown at Parkmerced would be sold at a similar or nearby farmers' market.

[27] Note also that the proposed location of the organic farm and community gardens is on a different area than the existing maintenance facility. Even if there were contamination of concern at the maintenance facility, which there is not, it is in a different place. In addition, the groundwater level is not high enough to transport chemicals in the shallow soil from the maintenance facility to the organic farm and community gardens area.

[28] *Phase I Report*, p. 27. The report concluded that there had been no significant impact to soil or groundwater at the site as a result of the 32 former USTs. There are no known, remaining USTs on the property. In addition, the Phase I Report concluded that the asbestos Operation and Maintenance Plan and the Lead Based Paint Operation and Maintenance Plan would be sufficient to manage asbestos-containing materials and lead-based paint, respectively.

or nearby schools.[29] The proposed increased density would not result in the use of new or more hazardous materials, but in an increase in the use of the same or similar hazardous materials already used on the Project Site. The Proposed Project would not contribute to any significant health and safety impact. Therefore, this impact would be less than significant. No mitigation would be required.

Impact HZ-4: The Proposed Project could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. *(Less than Significant)* (Criterion P.g)

Implementation of the Proposed Project would result in some changes to the internal street network, but would not substantially change the existing traffic circulation network in the Parkmerced vicinity. Occupants of the proposed buildings would contribute to congestion if an emergency evacuation of the Parkmerced and San Francisco State University area were required. The San Francisco Fire Code requires that all owners of high-rise buildings (over 75 feet) "shall establish or cause to be established procedures to be followed in case of fire or other emergencies. All such procedures shall be reviewed and approved by the chief of division."[30] In addition, project construction would have to conform to the provisions of the Building and Fire Codes that require additional life-safety protections for high-rise buildings. The Parkmerced complex has a Safety and Evacuation Plan that would be modified for the proposed development. In addition, there are now, and would continue to be, at least ten entrances/exits to the Parkmerced complex that could be used in an emergency. Therefore, project impacts related to interference with emergency response or evacuation plans would be less than significant. No mitigation would be necessary.

Impact HZ-5: The Proposed Project could expose people or structures to a risk of loss, injury or death involving fires. *(Less than Significant)* (Criterion P.h)

San Francisco ensures fire safety primarily through provisions in the San Francisco Building Code and the Fire Code. Development of the Proposed Project would be required to conform to those provisions, which include additional life-safety protections for high-rise buildings. Therefore, the Proposed Project would not expose people or structures to significant risk due to fire hazards. This impact would be less-than-significant and no mitigation would be required. See Section V.K, Public Services, for additional information about fire truck response and response times.

[29] Seth Mallen, Executive Vice President, Construction and Sustainability, Stellar Management –West Coast Operations, email, March 9, 2010.
[30] SF Fire Code, Section 12.202(e)(1).

Impact HZ-6: The Proposed Project, when combined with other past, present, and foreseeable development in the vicinity, would not result in cumulative hazardous materials impacts. *(Less than Significant)*

Development of the Proposed Project, with mitigation, would have less-than-significant impacts related to hazardous materials impacts. Several foreseeable development proposals are under consideration and are directly adjacent to the Project Site. The approved project at 800 Brotherhood Way calls for the construction of 60 single-family homes and 61 two-unit buildings on the 7.7-acre site between the south edge of the Project Site and the open space on the north side of Brotherhood Way. The *2007-2020 San Francisco State University Campus Master Plan* proposes physical changes and improvements to the campus, including construction of new buildings that would add approximately 972,400 square feet and 660 net new dwelling units to the campus. Anticipated building would range in height up to 100 feet tall. A proposed project at 77-111 Cambon Drive involves the demolition of two existing one-story commercial buildings and the construction of a mixed-use project ranging in height from two to four stories on the triangular site adjacent to the east boundary of the Project Site.

Impacts from hazards and hazardous materials are generally localized and site-specific and typically do not result in cumulative impacts. The Proposed Project, combined with the reasonably foreseeable cumulative projects, could result in cumulative impacts related to excavation and disposal of soil; exposure of construction workers to lead, asbestos, and other hazardous building materials during construction activities; and the handling, storage, use, transport, and disposal of hazardous waste during construction and/or operation. These cumulative projects would be subject to oversight by federal, state, regional and local agency regulations and policies and code requirement similar to proposed project. Therefore, compliance with these regulations and site-specific hazardous materials management would ensure that cumulative effects would not be significant.

Q. MINERAL AND ENERGY RESOURCES

This section describes the setting and impacts of the Proposed Project on mineral and energy resources of the Project Site and vicinity.

SETTING

MINERAL RESOURCES

All land in the City and County of San Francisco, including the Project Site, is designated Mineral Resource Zone 4 (MRZ-4) by the California Department of Conservation, Division of Mines and Geology (CDMG) under the Surface Mining and Reclamation Act of 1975.[1] This designation indicates that there is inadequate information available about the area for it to be any other MRZ; thus, the site is not a designated area of significant mineral deposits. No mining activities occur on the Project Site and none is known to have occurred.

ENERGY

Pacific Gas and Electric Company (PG&E) supplies electricity to San Francisco from a variety of renewable and non-renewable sources both within and outside of the state. The city of San Francisco used about 5,000 gigawatt-hours (GWh) of electricity per year in 2002; this is expected to reach 6,000 GWh in 2010.[2] PG&E also supplies natural gas to San Francisco from sources in the western United States.

The Project Site is currently developed with residential uses and landscaping. The existing buildings at Parkmerced are not energy efficient by current standards. Nearly all of them lack insulation, and most of the aluminum windows, though double pane, have modest insulating value compared to window systems available now. Natural gas is used to fuel the boilers for the hot water and space heating systems in the residential units. Most of these existing heating systems are original to the development and therefore offer low efficiency. In the tower buildings, the central boiler systems, which provide hot water and room heating, are prone to heat loss from pipes and leaking steam traps. Centralized hot water serves all the units in the tower building, and currently there is no metering mechanism in place to monitor hot water use on a per-unit basis. Therefore, there is no financial incentive for residents to conserve hot water. The existing buildings also lack a unified lighting system with energy-conserving fixtures, although some tenants may use energy-efficient light bulbs.

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[1] California Division of Mines and Geology, Open File Report 96-03, 1996 and Special Report 146 Parts I and II, 1986.

[2] San Francisco Department of the Environment, San Francisco Energy Watch Website: http://www.sfenergywatch.com/energy.html, accessed November 12, 2009.

Public electricity providers (such as PG&E) within the state are subject to both state and local jurisdictions' utilities regulations. California's recent energy crisis prompted San Francisco to begin efforts to promote energy conservation, energy efficiency, and alternative energy sources to achieve greater self-sufficiency and system reliability.

In December 2002, the City adopted the *Electricity Resource Plan*, which includes implementation steps for the following strategies: maximize energy efficiency; develop renewable power; assure reliable power; support affordable electric bills; improve air quality and prevent other environmental impacts; support environmental justice; promote opportunities for economic development; and increase local control over energy resources. The *Electricity Resource Plan* is a broad policy guide that provides a framework for more specific future programs and actions.

The City also has a number of programs to further promote energy conservation among residents and businesses. The San Francisco Energy Watch Program offers businesses and multi-family property owners free consultation related to energy-efficient appliances, as well as other rebates, audits, and incentives, and installation at a reduced fee. Typical equipment improvements include lighting, domestic hot water, heating ventilation and air conditioning units, and laundry machines.

Title 24 of the California Code of Regulations, the Building Code, requires certain energy and water conservation standards be met during remodel projects of existing buildings as well as in new construction, including the installation of low-flow toilets and showerheads. Thus, the Proposed Project would use less energy and water on a per person basis than the current buildings at Parkmerced.

IMPACTS

SIGNIFICANCE CRITERIA

The City and County of San Francisco has not formally adopted significance standards for impacts related to mineral and energy resources. The Planning Department Initial Study Checklist form provides a framework of topics to be considered in evaluating potential impacts under CEQA. Implementation of a project could have potentially significant impacts related to mineral and energy resources if it were to:

- Q.a Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Q.b Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan; or
- Q.c Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner.

IMPACT EVALUATION

Impact ME-1: The Proposed Project would not result in the loss of availability of a known mineral resource and/or a locally important mineral resource recovery. (*No Impact*) (Criteria Q.a, Q.b)

The Project Site is already developed with an existing residential neighborhood in an urbanized area of San Francisco. There are no known mineral resources on the Project Site or in the vicinity. Therefore, development of the Proposed Project would not impact any known mineral resources on the Project Site. Additionally, there are no designated mineral resource recovery sites in the Project Area whose operations or accessibility would be affected by the construction or operation of the Proposed Project. Therefore, the Proposed Project would have no impact on known mineral resources or any locally important mineral resources recovery site. No mitigation is required.

Impact ME-2: The Proposed Project would consume more fuel, electricity, and water, but would not encourage activities that could result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner. (*Less than Significant)* (Criterion Q.c)

Fuel, Water, and Energy Use

The Proposed Project includes a Sustainability Plan that addresses fuel, water, and energy use. The energy goal of the Sustainability Plan is that there would be no net increase in site energy use. This goal would be achieved by implementing a number of measures to improve energy efficiency on the site. These would include:

- Installing insulation exceeding San Francisco Building Code requirements in all new buildings;
- Installing windows with insulated glazing and low-conductivity window frames that minimize heat loss in new buildings;
- Installing energy-efficient lighting and appliances in new residential units and replacing existing lighting and appliances in buildings to be retained;
- Using cogeneration,[3] heat recovery ventilation,[4] and heat pumps;[5]
- Installing more efficient boilers for hot water and heating in the existing towers;
- Installing “smart meters” that show how electricity is used in the home so that residents can manage their power use; and

[3] Cogeneration is a thermodynamically efficient use of fuel. It is a process that converts waste energy made from on-site generated electrical power into beneficial uses, such as heat.
[4] Heat recovery ventilation uses warm air that would be vented to the outside to pre-heat incoming air.
[5] A heat pump is a device that moves heat from one location (the source) to another (the sink). Examples are refrigerators and air conditioners.

- Installing photovoltaic cells on rooftops and wind turbines along the western perimeter of the Project Site. Approximately 15 percent of the current site energy would be generated by these facilities.

The current electricity usage of Parkmerced is 85 gigawatt hours per year (Gwh/yr). With more units, and the implementation of the efficiency-improving measures, the projected demand would be 104 GWh/yr, of which 14 GWh/yr would be created on site through renewable sources. Natural gas consumption in the existing towers would be expected to decrease 13 percent from the installation of high-efficiency boilers.

With implementation of strategies identified in the Sustainability Plan, the Proposed Project would not result in the use of large amounts of fuel or energy. At a minimum, the Proposed Project's energy demand would be typical of or less than that of a project of this scope and nature that did not include energy-saving features. With implementation of energy-saving strategies as outlined in the Sustainability Plan, conservation of energy would likely exceed current state and local energy conservation standards, including Title 24 of the California Code of Regulations enforced by the Department of Building Inspection. Therefore, the Proposed Project would not result in the use of large amounts of fuel or energy, or use these in a wasteful manner.

The Proposed Project would also implement water conservation practices. Efficient plumbing fixtures would be installed throughout the Project Site. Existing fixtures would all be replaced. Stormwater would be collected in on-site retention basins and reused for irrigation and to infiltrate into the groundwater aquifer (see Section V.K, Utilities and Services Systems, and Section V.O, Hydrology and Water Quality, for a discussion of how retaining stormwater runoff would reduce water consumption on the Project Site). Therefore, the Proposed Project would not use water in a wasteful manner.

The Proposed Project would use some energy produced by power plants providing power to the Northern California grid owned by the SFPUC and PG&E, although it would not be fully dependent on these types of non-renewable natural resources, nor would it require the use of other non-renewable natural resources. These power-producing facilities use hydropower and natural gas, coal, and nuclear fuels. Thus, the proposed project would not have a substantial effect on the use, extraction, or depletion of a natural resource.

In summary, the Proposed Project would have a less-than-significant impact on the use of fuel, water, or energy and would not result in the use of large amounts or in the wasteful use of fuel, water or energy. No mitigation is required.

Energy Costs and Supply

San Francisco consumers have recently experienced rising energy costs and uncertainties regarding the supply of electricity. The root causes of these conditions are under investigation

and are the subject of much debate. Part of the problem may be that the state does not generate sufficient energy to meet its demand and must import energy from outside sources. Another part of the problem may be the lack of cost controls as a result of deregulation. The California Energy Commission is considering applications for the development of new power-generating facilities in San Francisco, the Bay Area, and elsewhere in the state. These facilities could supply additional energy to the power supply "grid" within the next few years. These efforts, together with conservation, will be part of a statewide effort to achieve energy sufficiency. The demand for electricity generated by the Proposed Project would be negligible in the context of overall demand within San Francisco and the state, and would not in and of itself require a major expansion of power facilities.

Therefore, the energy demand associated with the Proposed Project would not result in a significant physical environmental effect or contribute to a cumulative impact. This impact would be less than significant. No mitigation is required.

R. AGRICULTURAL RESOURCES AND FOREST LAND

This section examines the effects of the Proposed Project related to agricultural resources.

SETTING

The Project Site is fully developed with an existing residential neighborhood in an urbanized area of San Francisco. The California Department of Conservation's Farmland Mapping and Monitoring Program identifies the site as "Urban and Built-up Land," which is defined as an area of intensive use with much of the land covered by structures.[1] The Project Site is not classified as having any farmland. The site is not zoned for agricultural use. There are no areas designated on or near the site as Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance. There are no areas under Williamson Act[2] contract on the Project Site. The Project Site contains over 487 street trees (trees within 10 feet of the street); none of these are native species, nor are they harvested for timber.[3] Vegetation on the southern edge of the site along Brotherhood Way resembles a Monterey pine woodland; however, it is not formally designated as a forest or timberland. The southern edge, which does not have pedestrian access, is comprised primarily of plants and trees not native to San Francisco. Thus, the Project Site does not contain any forest land or timberland.

IMPACTS

SIGNIFICANCE CRITERIA

The City and County of San Francisco has not formally adopted significance thresholds for impacts related to agriculture resources. The Planning Department Initial Study Checklist form provides a framework of topics to be considered in evaluating potential impacts under CEQA. Implementation of a project could have potentially significant impacts related to agricultural resources if it were to:

R.a Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;

R.b Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public

[1] California Department of Conservation, Farmland Mapping and Monitoring Program, 2006. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/statewide/2006/fmmp2006_08_11.pdf

[2] The Williamson Act is a voluntary California law enacted in 1965 that provides property tax relief to owners of farmland and open-space land in exchange for a 10-year agreement that the land will not be developed or converted into another use.

[3] HortScience, *Interior Tree Survey Villas Parkmerced*, San Francisco, CA, August 2008, pp. 3-4.

Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code 51104(g));

R.c Result in the loss of forest land or conversion of forest land to non-forest use;

R.d Conflict with existing zoning for agricultural use, or a Williamson Act contract; or

R.e Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland of Statewide Importance, to non-agricultural use or conversion of forest land to non-forest use.

IMPACT EVALUATION

Impact AG-1: The Proposed Project would not result in the conversion of farmland, or involve other changes that would result in conversion of farmland to non-agricultural use. ***(No Impact)*** **(Criteria R.a, R.e)**

The site does not contain any agricultural uses. The Proposed Project would not convert any property designated as Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance to non-agricultural use. The Proposed Project would not result in any other changes that could result in conversion of farmland to non-agricultural use. Therefore, there would be no impact on designated farmland. No mitigation is required.

Impact AG-2: The Proposed Project would not result in conflicts with existing zoning for agricultural use or Williamson Act contracts. ***(No Impact)*** **(Criterion R.d)**

The Proposed Project would not conflict with existing zoning for agricultural land use or a Williamson Act contract, because none of the site has any agricultural zoning, and there are no Williamson Act contracts on any portion of the Project Site. Therefore, this impact would be less than significant. No mitigation is required.

Impact AG-3: The Proposed Project would not negatively affect forests or timberland. (*No Impact)* (Criteria R.b, R.c)

There is no timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code 51104(g)) on the Project Site.

None of the trees currently growing in Parkmerced are managed for a public benefit, and therefore Parkmerced is not “forest land” pursuant to Public Resources Code Section 12220(g). The Proposed Project would plant replacement and additional trees that are either native species or other species closely adapted to the climate conditions, increasing the number of native tree species at Parkmerced.

The Proposed Project would not result in the loss of forest land, or the conversion of forest to non-forest use. Thus, there would be no significant impacts on forest land, and no mitigation measures are required.

VI. OTHER CEQA ISSUES

A. GROWTH INDUCING IMPACTS

As required by Section 15126.2(d) of the CEQA Guidelines, an EIR must discuss the ways in which the Proposed Project could directly or indirectly foster economic or population growth or the construction of additional housing. Growth-inducing impacts can result from the elimination of obstacles to growth; through increased stimulation of economic activity that would, in turn, generate increased employment or demand for housing and public services; or as a result of encouraging premature or unplanned growth.

Implementation of the Proposed Project would require amendments to the San Francisco Planning Code and the *San Francisco General Plan* to adopt a Proposed Special Use District that would apply to the Project Site. The Special Use District would make provisions for the implementation of the Proposed Project and review of design pursuant to guidelines detailed in a Development Agreement and a Design for Development document. The Design for Development would establish specific land use controls, bulk limits and building separation requirements, design guidelines, parking and loading guidelines, landscaping and open space requirements, and building design standards. The Proposed Special Use District would reduce the total number of residential units that could be built compared to the number allowed under existing zoning. Specifically, the Special Use District would permit the Project Site to contain a total of 8,900 housing units; the existing zoning allows construction of 10,500 housing units on the Project Site.

While the Proposed Project in itself represents growth, the provision of new housing and employment opportunities would not encourage substantial new growth in the City that has not previously been projected. About 1,683 of the existing units on the Project Site would be retained, and the remaining 1,538 existing units would be demolished and fully replaced in phases over a period of approximately 20 years. An additional 5,679 net new units would be constructed on the Project Site. With project implementation, there would be a total of 8,900 units at full buildout. The net increase of about 12,950 residents would approximately triple the Project Site's population at buildout. The number of residential units would increase from about 1 housing unit for every 1,550 square feet of land area to about 1 for every 560 square feet of land area, similar to many residential and residential-mixed zoning districts in the City. ABAG's *Projections 2009* estimates that the City will gain about 124,800 persons between 2010 and 2030 and that

80 percent of the City's future population growth will occur in its Priority Development Areas.[1] Population growth due to implementation of the Proposed Project would be about 10.4 percent of Citywide population growth expected by 2030. The increase in the on-site residential population on the Project Site would conform to the designation as a Priority Development Area.

Employment generated by the Proposed Project is expected to total about 1,830 employees, with a net new employment total of about 1,595 jobs on the Project Site. Based on assumptions about commute patterns and household size, employment under the Proposed Project would generate a demand for up to 1,225 new dwelling units in the San Francisco Bay Area. The 5,679 net new housing units that would be developed at Parkmerced would exceed the demand for new units in the City (930) generated by employment at Parkmerced as well as the total demand for new units in the Bay Area (1,225). Therefore, the Proposed Project's housing demand would not contribute to unplanned growth that has not already been accounted for in the City and Bay Area region.

Implementation of the Proposed Project includes construction of (or provides financing for construction of) a series of transportation and infrastructure improvements designed to minimize the amount of automobile traffic originating from Parkmerced. These improvements include rerouting the existing MUNI Metro M Ocean View line from its current alignment along 19th Avenue. However, the Proposed Project would not create new transportation access to an area that was previously inaccessible by transit or automobile, and therefore would not create new access to an outlying area.

The Proposed Project also includes the installation of a combination of renewable energy sources, such as wind turbines and photovoltaic cells, to meet a portion of the Proposed Project's energy demand, as well as stormwater improvements that would reduce the amount of stormwater flows directed to the Oceanside Water Pollution Control Plant and reduce combined sewage overflows to the ocean. The Proposed Project, however, would not extend water, sewer, or other public services to currently underserved areas. Therefore, the Proposed Project would not eliminate obstacles to growth.

Based on this analysis, the Proposed Project would not have a growth-inducing impact, and no mitigation is required.

[1] *Projections 2009*, p. 17 and p. 94. There are ten Priority Development Areas in the City. The Project Site is in one of them, the "19th Avenue Corridor – County Line to Eucalyptus Drive." As stated in *Projections 2009*, p. 19, Priority Development Areas are locally-identified, infill development opportunities near transit and are areas of at least 100 acres where there is local commitment to develop more housing, along with amenities and services to meet day-to-day needs of residents in a pedestrian-friendly environment.

B. SIGNIFICANT UNAVOIDABLE IMPACTS

In accordance with Section 21067 of CEQA and with Sections 15126(b) and 15126.2(b) of the *CEQA Guidelines*, the purpose of this section is to identify significant environmental impacts that could not be eliminated or reduced to less-than-significant levels by implementation of mitigation measures included in the Proposed Project or identified in Chapter V, Environmental Setting, Impacts, and Mitigation Measures.

The Proposed Project and variants would result in the following significant, unavoidable project-level and cumulative impacts.

AESTHETICS

The following impact on Aesthetics would be significant and unavoidable.

- The proposed demolition of the existing garden apartment buildings and the proposed removal of the existing landscaping would eliminate a visual/scenic resource of the built environment. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.

HISTORIC RESOURCES

The following impacts on Historic Resources would be significant and unavoidable even with implementation of mitigation measures identified in this EIR.

- The proposed demolition of the existing garden apartment buildings and removal of existing landscape features on the Project Site would impair the historical significance of the Parkmerced historic district historical resource. Mitigation Measure M-CR-1 would reduce the adverse impact of the Proposed Project but not to a less-than-significant level.

- The proposed demolition of the existing garden apartment buildings and removal of existing landscape features on the Project Site would contribute to a cumulative impact on the historic significance of the Parkmerced historic district historical resource. Mitigation Measure M-CR-1 would reduce the adverse impact of the Proposed Project but not to a less-than-significant level.

TRANSPORTATION

The following transportation impacts would be significant and unavoidable even with implementation of mitigation measures identified in this EIR. In many cases, mitigation measures would reduce the significant impact, but not to less-than-significant levels.

- Significant impacts due to construction vehicle traffic and road construction associated with the realignment of the existing light rail tracks (with or without the proposed sub-variant) or Project Variant (with or without the proposed sub-variant). Implementation of Mitigation Measure M-TR-1 would reduce but not eliminate these significant impacts.

- Significant impacts would occur at the intersection of 19th Avenue/Sloat Boulevard, generally due to increases in traffic along 19th Avenue. Because no feasible mitigation measures were identified, Project-related impacts at this intersection would be significant and unavoidable.
- Significant impacts would occur at the intersection of 19th Avenue/Winston Drive, generally due to increases in traffic along both Winston Drive and 19th Avenue. Because no feasible mitigation measures were identified, Project-related impacts at this intersection would be significant and unavoidable.
- Significant impacts at the intersection of Sunset Boulevard/Lake Merced Boulevard, primarily due to the increased level of traffic traveling southbound on Sunset Boulevard, which increases delay for the stop-controlled northbound left-turn movement. With implementation of M-TR-2B, operations at this intersection would improve to acceptable LOS D or better in the PM peak hour. However, since SFMTA is currently evaluating the feasibility of this measure and has not yet finalized its evaluation, implementation M-TR-2B is uncertain, and Project-related impacts at this intersection would remain significant and unavoidable.
- Significant impacts at the signalized Lake Merced Boulevard/Winston Drive intersection, primarily due to Project-related traffic added to the northbound and southbound through, northbound right-turn and westbound left-turn movements. The Project's impact would be significant in the AM and PM peak hours. Implementation of mitigation measure M-TR-2C would improve operations at this intersection to acceptable LOS D or better in the AM and PM peak hours. However, the feasibility of this measure is uncertain due to the adjacent unsignalized intersection, approximately 75 feet south of Winston Drive, which would conflict with the northbound right-turn lane. Further study is required to determine whether this mitigation measure is feasible. However, because the feasibility of this measure is uncertain, Project-related impacts at this intersection would remain significant and unavoidable.
- Significant impacts on the signalized Lake Merced Boulevard/Font Boulevard intersection primarily due to substantial traffic volume increases on nearly all approaches to the intersection. The Project's impacts would be significant in the AM and PM peak hours. With implementation of M-TR-2D, operations at this intersection would improve to acceptable LOS D or better conditions in the AM and PM peak hours. However, a dual left-turning movement against a pedestrian signal may considered a safety hazard. Further, since a feasibility study would be required, implementation of M-TR-2D is uncertain, and therefore, Project-related impacts at this intersection would remain significant and unavoidable.
- Significant queuing impacts at the signalized Lake Merced Boulevard/Brotherhood Way intersection, primarily due to significant levels of Project-related traffic added to the northbound through, southbound left and westbound right-turn movements. The Project's impact would be significant in the weekday AM and PM peak hours and the weekend peak hour. Implementation of mitigation measure M-TR-2E would reduce but not eliminate the significant impact.
- Significant impacts at the signalized Junipero Serra Boulevard/Sloat Boulevard/St. Francis Boulevard/Portola Drive intersection generally due to increases in traffic along Junipero Serra Boulevard generally due to increases in traffic along Junipero Serra

Boulevard. Mitigation measures involving increased capacity were considered infeasible. Therefore, the Project's impact to this intersection would be significant and unavoidable.

- Significant impacts at the signalized Junipero Serra Boulevard/John Daly Boulevard/I-280 Northbound On-Ramp/I-280 Southbound Off-Ramp/SR 1 Northbound On-Ramp intersection. Due to the generally constrained environment and complex intersection geometry, space for additional travel lanes could not be allocated. Substantial improvement could only be accomplished through major changes. To accommodate additional right-of-way needed for additional lanes, demolition of adjacent land uses and substantial right-of-way acquisition would be required. Therefore, traffic impacts at this intersection under the Project conditions would remain significant and unavoidable
- Significant impacts would occur at the signalized 19th Avenue/Holloway Avenue intersection with the implementation of the Project Variant. Intersection operations would degrade from an acceptable LOS D under Existing conditions to an unacceptable LOS E during the AM peak hour under conditions with the Project Variant. This is a significant impact of the Project Variant in the AM peak hour. With implementation of mitigation measure M-TR-5, Project Variant-related impacts at this intersection would be less-than-significant. The mitigation measure, however, would have a significant secondary transit impact due to its conversion of the HOT lane. Due to the generally constrained environment, providing additional travel lanes along 19th Avenue is not feasible, and therefore M-TR-5's secondary impact to transit would remain significant.
- Significant impacts with the sub-variant's construction of a right-turn ingress along 19th Avenue between Crespi Drive and Junipero Serra Boulevard at Cambon Drive would occur. Some of the vehicles that would execute a right-turn at Crespi Drive would instead continue south on 19th Avenue and turn right onto Cambon Drive. The right turn can be provided as a shared movement from the fourth southbound mixed-flow through lane constructed as part of the Proposed Project. Vehicles slowing to make the right-turn ingress may impede the flow of traffic at this location. With implementation of the sub-variant, the Proposed Project's significant impacts, as identified in Impact TR-2, TR-3, and TR-4 would remain significant.
- Significant impacts with the sub-variant's construction of a right-turn ingress along 19th Avenue between Crespi Drive and Junipero Serra Boulevard at Cambon Drive would occur. Some of the vehicles that would execute a right-turn at Crespi Drive would instead continue south on 19th Avenue and turn right onto Cambon Drive. Vehicles turning into a new driveway at Cambon Drive would be relocated from Crespi Drive – from near the beginning of the HOT lane to near the middle. Implementation of improvement measure I-TR-7 would provide a southbound right turn deceleration lane, in addition and adjacent to the HOT lane, at the new access from 19th Avenue at Cambon Drive to avoid interference with HOT lane operations. Intersection impacts identified in Impact TR-5 would remain the same with implementation of the sub-variant in conjunction with the Project Variant. With implementation of the sub-variant, the Project Variant's significant impacts would remain significant.
- Significant impacts would occur on Southbound SR 1 (Junipero Serra Boulevard): Weaving Segment Between On-ramp from Brotherhood Way and Direct Off-ramp to John Daly Boulevard – Project traffic would increase volumes on this segment and cause it to deteriorate from LOS E in the PM peak hour under existing conditions to LOS F conditions. Therefore, the Project's impact is considered significant in the PM peak hour.

The projected poor operating conditions on the affected freeway segment could only be improved by creating additional mainline capacity, which would require acquisition and demolition of adjacent land uses. This would exceed the reasonable scope of the Project and reasonable control of the lead agency. Therefore, mitigation of this Project impact to a less-than-significant level is considered to be infeasible. The Project impact to this freeway segment LOS would be significant and unavoidable.

- Significant impacts would occur on Northbound SR 1 (Junipero Serra Boulevard): Weaving Segment Between Loop On-ramp from Brotherhood Way and Loop Off-ramp to Brotherhood Way. This segment of SR 1 operates at LOS F in the PM peak hour under Existing conditions. Project traffic would increase volumes on this segment by over 40 percent in the PM peak hour compared to Existing conditions. This would be considered a significant contribution. The Project's impact at this section would be considered significant in the PM peak hour. Implementation of mitigation measure M-TR-9 would improve the weaving section operation to acceptable LOS in the PM peak hour with implementation of the Proposed Project. However, because this facility is under Caltrans jurisdiction and requires further analysis to determine feasibility, the identified mitigations cannot be guaranteed by the City. Traffic impacts at this facility under the Project conditions would remain significant and unavoidable.
- Significant impacts would occur on Southbound SR 1 (Junipero Serra Boulevard): Weaving Segment Between On-ramp from Brotherhood Way and Direct Off-ramp to John Daly Boulevard. This segment of SR 1 operates at LOS E in the AM peak hour under Existing conditions. Project traffic would increase volumes on this segment by more than five percent, which would be considered a significant contribution. Therefore, the Project's impact is considered significant in the AM peak hour. The project would also cause this weaving segment to deteriorate from LOS E to LOS F during the PM peak hour. There are no feasible mitigation measures to improve operations at this facility. Therefore, Project-related impacts on this weaving segment would remain significant and unavoidable.
- Implementation of the Project Variant would have significant impacts at the same freeway segments expected to experience significant impacts associated with the Proposed Project. Therefore, the Project Variant's impacts to Study Area freeway facilities would be identical to the Proposed Project and would remain significant and unavoidable.
- Implementation of the sub-variant, either in conjunction with the Proposed Project or the Project Variant would have significant impacts at the same freeway segments expected to experience significant impacts associated with the Proposed Project. Therefore, with implementation of the sub-variant, the Project and Project Variant's impacts to Study Area freeway facilities would be identical to the Proposed Project and would remain significant and unavoidable.
- Significant impacts by Project-related transit trips would cause the Study Area northeast screenline to exceed Muni's capacity utilization standard of 85 percent in the outbound (toward Parkmerced) direction during the PM Peak Hour.
- The Project Variant would not affect travel demand or transit capacity at Study Area screenlines, compared to the Proposed Project. Therefore, with implementation of the Project Variant, the Project Variant's impacts to the Study Area northeast screenline would be identical to the Proposed Project and would remain significant and unavoidable.

- The sub-variant would not affect travel demand or transit capacity at Study Area screenlines. Therefore, with implementation of the sub-variant, either in conjunction with the Proposed Project or the Project Variant, the Project and Project Variant's impacts to the Study Area northeast screenline would be identical to the Proposed Project and would remain significant and unavoidable.
- Significant impacts on the M Ocean View light rail line by rerouting it into the Project Site, extending its route and imparting an additional five minutes of travel time to complete each run. Without additional light rail vehicles, Muni could not operate this longer route at current headways. Implementing either Mitigation Measure M-TR-21A or M-TR-21B would allow Muni to maintain transit headways, and would reduce the Project's impact to less than significant levels. However, Mitigation Measure M-TR-21B would be preferable because it would not only allow Muni to maintain transit headways, but would also improve travel times for riders. However, because M-TR-21B requires a feasibility study, and it is unknown whether M-TR-21A or M-TR-21B would be implemented, Project-related impacts on the M Ocean View in the AM and PM peak hours would be significant and unavoidable.
- Significant impacts on travel times and impact operations of the 18 46th Avenue would occur due to delays on Lake Merced Boulevard. Implementation of M-TR-22A would improve conditions, but alone would not likely reduce transit peak hour travel times enough to reduce the Project's impact during the AM and PM peak hours to less than significant levels. Therefore, with implementation of mitigation measure M-TR-22A alone, the Project's impact to the 18 46th Avenue in the AM and PM peak hour would remain significant. Further, since the implementation of mitigation measure M-TR-22B is uncertain (due to the need for further study and the conflict with mitigation measures M-TR-2C, M-TR-2D, and M-TR-2E), its feasibility is uncertain. Therefore, project-related impacts on this route would be significant and unavoidable.
- Significant impacts on the operation of the 17 Parkmerced would occur due to substantial delays along a key corridor – 19th Avenue, between Holloway Avenue and Winston Drive. Implementation of mitigation measure M-TR-23 would require substantial study, public outreach, and would result in secondary traffic impacts associated with the removal of a mixed-flow traffic lane. This measure would also require approval by Caltrans, which is responsible for improvements to this section of 19th Avenue. Because of the amount of additional study required and the multiple jurisdictions that would be required to adopt it, its feasibility is uncertain. Therefore, Project-related impacts on this route would remain significant and unavoidable.
- Significant impacts on the operation of the 28 19th Avenue would occur due to substantial delays along 19th Avenue. Implementation or mitigation measure M-TR-24 (i.e., implement the Project Variant) would improve transit travel times on the 28 19th Avenue. However, because implementation of the Project Variant is uncertain, this mitigation measure may not be feasible. Thus, the Project's impacts to the 28 19th Avenue in the PM peak hour would remain significant and unavoidable.
- Significant impacts to the operation of the 29 Sunset would occur due to substantial delays along key corridors – Sunset Boulevard, Lake Merced Boulevard, Winston Drive, and 19th Avenue. Implementation of M-TR-25A alone would not likely reduce transit peak hour travel times enough to eliminate the need for an additional transit vehicle in the PM peak hour. Implementation of mitigation measure M-TR-25B or a combination of

the two mitigation measures could reduce the impacts on the 29 Sunset to a less-than-significant level. Mitigation measure M-TR-25C would require the purchase of additional vehicles to maintain proposed headways in a more congested environment. However, SFMTA has not determined the feasibility of these mitigation measures. Therefore, Project-related impacts on this route would remain significant and unavoidable.

- Significant impacts would occur on the operation of SamTrans Route 122 due to substantial delays at key intersections along Lake Merced Boulevard, including at Brotherhood Way, Higuera Avenue, and Font Boulevard. Implementing mitigation measure M-TR-26 would reduce the Project impact to a less-than-significant level. However, as described in the discussion of mitigation measures M-TR-22A and M-TR-22B, feasibility of these measures is uncertain. Therefore, Project-related impacts on SamTrans Route 122 in the AM and PM peak hours would be significant and unavoidable.
- Although transit impacts to lines serving 19th Avenue under the Project Variant would be slightly reduced compared to the Proposed Project, the Project Variant's impact to 19th Avenue transit travel times would remain significant and unavoidable.
- With implementation of the sub-variant, either in conjunction with the Proposed Project or the Project Variant, the impacts to transit travel times would be nearly identical to the Proposed Project or Project Variant, respectively, and would remain significant and unavoidable.
- Significant cumulative traffic impacts would occur at the intersection of Junipero Serra Boulevard/Sloat Boulevard/St. Francis Boulevard/Portola Drive, where the intersection would operate at an unacceptable LOS E during the AM peak hour under Existing conditions, and would degrade to LOS F under 2030 cumulative conditions. It would also operate at an unacceptable LOS F during the PM peak hour and weekend midday peak hour under both the Existing and 2030 cumulative conditions. Cumulative traffic would contribute substantial volume increases to and from critical movements operating unacceptably at the intersection during all three peak hours. Mitigation measures involving increased capacity were considered infeasible. Therefore, the Proposed Project's contribution to the cumulative impact at this intersection would be significant and unavoidable.
- Significant cumulative traffic impacts would occur at the signalized Junipero Serra Boulevard/John Daly Boulevard/I-280 Northbound On-Ramp/I-280 Southbound Off-Ramp/SR 1 Northbound On-Ramp intersection, as the intersection would operate at an unacceptable LOS F during the PM peak hour under existing and cumulative conditions. The Proposed Project would contribute substantial increases in traffic to the critical northbound left-turn from Junipero Serra Boulevard to westbound John Daly Boulevard (24 percent). This would be a cumulatively-significant impact. Due to the generally constrained environment and complex intersection geometry, space for additional travel lanes could not be allocated. Substantial improvement could only be accomplished through major changes. To accommodate additional right-of-way needed for additional lanes, demolition of adjacent land uses and substantial right-of-way acquisition would be required. Therefore, the Proposed Project's contribution to the cumulative impact at this intersection would be significant and unavoidable.

- Significant cumulative traffic impacts would occur at the signalized 19th Avenue/Sloat Boulevard intersection, as the intersection operating conditions would degrade in the AM peak hour from LOS E under Existing conditions to LOS F with 2030 cumulative conditions. The degradation in level of service in the AM peak hour would be primarily due to traffic along this segment of 19th Avenue. This would be a cumulatively-significant impact. Although the Proposed Project's contribution to AM peak hour traffic volumes at this intersection would be relatively small, increases would generally be added to congested movements along 19th Avenue, which somewhat magnifies their effect. To improve operating conditions at this intersection to acceptable levels, additional vehicle capacity would be required along 19th Avenue. Substantial improvement could only be accomplished through major changes, such as widening 19th Avenue to add more lanes. To accommodate additional right-of-way needed for additional lanes, 19th Avenue would need to be widened to the east and west. This would require demolition of existing structures and substantial right-of-way acquisition; therefore, the measure was not further considered. Furthermore, 19th Avenue is a Caltrans facility; therefore, even if space were physically available, implementation of identified mitigations cannot be guaranteed by the City. Therefore, the Proposed Project's contribution to the cumulative impact at this intersection would be significant and unavoidable.
- Significant cumulative traffic impacts would occur at the signalized 19th Avenue / Winston Drive intersection, the intersection would operate at LOS D during the AM peak hour and weekend midday peak hour under existing conditions, and would degrade to LOS F under 2030 cumulative conditions. Additionally, the intersection operates at an unacceptable LOS F during the PM peak hour under existing conditions and Project-related traffic would cause a substantial increase in traffic volumes on multiple critical approaches. This would be a cumulatively-significant impact. The cumulative impact at this intersection is generally due to increases in traffic along both 19th Avenue and Winston Drive. Substantial improvement could only be accomplished through major changes. Due to the presence of the M Ocean View light rail line in the center median, generally constrained environment, and complex intersection geometry, space for additional travel lanes could not be allocated. To accommodate additional right-of-way needed for additional lanes, demolition of existing structures and substantial right-of-way acquisition would be required. Further, widening the roadway, which would increase pedestrian crossing distances across 19th Avenue, would be inconsistent with San Francisco's goal of improving pedestrian circulation and safety in the Study Area. Therefore, mitigation measures involving increased capacity were considered infeasible. Therefore, the Proposed Project's contribution to the cumulative impact at this intersection would be significant and unavoidable.
- Significant cumulative traffic impacts would occur at the signalized 19th Avenue/Holloway Avenue intersection, as the intersection operations would degrade from an acceptable LOS D during the AM peak hour and LOS B during the weekend midday peak hour under Existing conditions to an unacceptable LOS E under 2030 cumulative conditions. Further, PM peak hour conditions operate at LOS E under existing conditions and would degrade to an unacceptable LOS F under 2030 cumulative conditions. This would be a cumulatively-significant impact. Implementation of mitigation measure M-TR-36B would achieve acceptable operations at this intersection. However, because this mitigation measure would require further evaluation, its

implementation is uncertain. Therefore, the Proposed Project's contribution to the cumulative impact at this intersection would remain significant and unavoidable.

- Significant cumulative traffic impacts would occur at the signalized Brotherhood Way/Chumasero Drive intersection, as the intersection would degrade from an unacceptable LOS E during the PM peak hour under existing conditions to LOS F under 2030 cumulative conditions. This would be a cumulatively-significant impact. With implementation of mitigation measure M-TR-36C, acceptable LOS could be achieved and the cumulative impact would be reduced to less than significant. However, SFMTA has not determined the feasibility of this mitigation. Because this mitigation measure would require further evaluation, its implementation is uncertain. Therefore, the Proposed Project's contribution to the cumulative impact at this intersection would remain significant and unavoidable.
- Significant cumulative traffic impacts would occur at the unsignalized Sunset Boulevard/Lake Merced Boulevard intersection, as the intersection operating conditions would degrade in the PM peak hour from LOS C under Existing conditions to LOS F under 2030 cumulative conditions. This intersection meets Caltrans peak hour signal warrants; therefore, this is a cumulatively-significant impact in the PM peak hour. Implementation of M-TR-2B would improve operations at this intersection to acceptable levels. However, SFMTA is currently evaluating the feasibility of this measure and has not yet finalized its evaluation. Therefore, implementation of M-TR-2B is uncertain, and the Proposed Project's contribution to the cumulative impact at this intersection would remain significant and unavoidable.
- Significant cumulative traffic impacts would occur at the signalized Lake Merced Boulevard/Winston Drive intersection, as the intersection operating conditions would degrade in the AM peak hour from LOS C under existing conditions to LOS F under 2030 cumulative conditions. Conditions in the PM peak hour would degrade from LOS D under existing conditions to LOS F under 2030 cumulative conditions. This would be a cumulatively-significant impact. Implementation of mitigation measure M-TR-2C would improve operations at this intersection, but operations would remain at an unacceptable LOS E in the PM peak hour. Additionally, the feasibility of this measure is uncertain due to the adjacent unsignalized intersection, approximately 75 feet south of Winston Drive, which would conflict with the northbound right-turn lane. Further study is required to determine whether this mitigation measure is feasible. However, because acceptable operations cannot be achieved, implementation of this measure is uncertain, and further capacity enhancements are infeasible, the Proposed Project's contribution to cumulative impacts at this intersection would remain significant and unavoidable.
- Significant cumulative traffic impacts would occur at the signalized Lake Merced Boulevard/Font Boulevard intersection, as the intersection operating conditions would degrade in the AM peak hour from LOS D under existing conditions to LOS F under 2030 cumulative conditions. Operations during the PM peak hour would degrade from LOS C under existing conditions to LOS F under 2030 cumulative conditions. The degradation in level of service would be primarily due to substantial traffic volume increases on nearly all approaches to the intersection. This would be a cumulatively-significant impact in the AM and PM peak hours. Implementation of M-TR-2D would improve operations at this intersection, but not such that operations improve to acceptable LOS D or better under 2030 cumulative conditions. To achieve acceptable operations in 2030 cumulative conditions, westbound right-turn capacity enhancements, such as

providing an additional westbound right turn lane, would be necessary in addition to M-TR-2D. However, a dual right-turn lane against a pedestrian signal is considered a safety hazard and would be inconsistent with the City's goals of promoting walking and bicycling, and would therefore be considered infeasible. Because implementation of M-TR-2D requires further study by SFMTA and its implementation is thus uncertain, and because additional improvements, such as a second westbound right-turn lane, required in addition to M-TR-2D to achieve acceptable operations are not feasible, the Proposed Project's contribution to cumulatively significant impacts at this intersection would remain significant and unavoidable.

- Significant cumulative traffic impacts would occur at the signalized Lake Merced Boulevard /Brotherhood Way intersection, as the intersection operating conditions would degrade in the PM peak hour and the weekend midday peak hour from LOS C under existing conditions to LOS F under 2030 cumulative conditions. Operations in the AM peak hour would degrade from LOS D under existing conditions to LOS F under 2030 cumulative conditions. With implementation of M-TR-2E operations at this intersection would improve, but would continue to operate at LOS F during both the AM and PM peak hours. SFMTA has not yet determined the feasibility of this mitigation measure. However, if feasible, operating conditions would be substantially better than conditions without the improvements. To achieve acceptable operating conditions at this intersection, a second northbound left-turn lane, in addition to M-TR-2E, would be required. However, provision of dual northbound left-turn lanes would present a pedestrian safety conflict with the crosswalk on the northern leg of the intersection. Therefore, implementation of this improvement measure would be inconsistent with the City's goals of promoting walking and bicycling and are therefore considered infeasible. Because implementation of M-TR-2E requires further study by SFMTA and its implementation is thus uncertain, and because additional improvements, such as a second northbound left-turn lane, required in addition to M-TR-2E to achieve acceptable operations are not feasible, the Project's contribution to cumulatively significant impacts at this intersection would remain significant and unavoidable.

- Significant cumulative traffic impacts would occur at the unsignalized Lake Merced Boulevard/John Muir Drive intersection, as the intersection would operate at an unacceptable LOS F during the AM and PM peak hours under Existing and 2030 cumulative conditions. This intersection meets Caltrans peak hour signal warrants. Therefore, this is a cumulatively-significant impact. Implementation of mitigation measure M-TR-36D would improve intersection operations to acceptable levels. The Project Sponsor should contribute a fair-share toward funding this mitigation measure. However, because there is no funding mechanism in place to provide full funding for this measure, its feasibility is uncertain. Therefore, the Proposed Project's contribution to cumulatively significant impacts at this intersection would remain significant and unavoidable.

- Significant cumulative traffic impacts would occur at the signalized John Daly Boulevard/Lake Merced Boulevard intersection, as the intersection would degrade from an acceptable LOS C during the PM peak hour under existing conditions to an unacceptable LOS E under 2030 cumulative conditions. This is a cumulatively significant impact. Mitigation measure M-TR-36E would convert the dedicated southbound through lane at this intersection to a third dedicated left-turn lane. Implementation of mitigation measure TR-36E would achieve acceptable operations at

this intersection. The Project Sponsor would be responsible to fund a "fair share" contribution towards the implementation of mitigation measure M-TR-36E. However, there is no mechanism identified to collect the remaining funding for implementing this mitigation measure, and its full funding is uncertain. Furthermore, the improvements identified above would be the responsibility of Daly City and could not be implemented by San Francisco. Therefore, the Proposed Project's contribution to cumulatively significant impacts at this intersection would remain significant and unavoidable.

- Significant cumulative traffic impacts would occur at the intersection of Lake Merced Boulevard/Gonzalez Drive, as the intersection would operate at an unacceptable LOS E during the PM peak hour under 2030 cumulative conditions as designed. Congestion would be caused primarily by excessive flow in and out of the Project Site conflicted by heavy north-south through movements on Lake Merced Boulevard. This would be a cumulatively significant impact. Mitigation measure M-TR-36F would install an auxiliary lane from Brotherhood Way through the Lake Merced Boulevard/Gonzalez Drive intersection to provide three northbound through lanes. With implementation of mitigation measure TR-36F, operations at this intersection would improve to acceptable LOS D or better conditions in the PM peak hour. However, because further study is required to determine feasibility of this mitigation measure, its feasibility is uncertain. Therefore, the Proposed Project's contribution to cumulatively significant impacts at this intersection would remain significant and unavoidable.
- Implementation of the Project Variant would result in the same significant cumulative impacts as the Proposed Project, as identified in Impacts TR-35 and TR-36, plus significant cumulative impacts at two additional study intersections compared to cumulative conditions with the Proposed Project. This impact would be significant and unavoidable with mitigation)
- Significant cumulative traffic impacts would occur at the intersection of 19th Avenue/Junipero Serra Boulevard, as the intersection operations would further degrade an unacceptable LOS F during the PM peak hour under Existing conditions in the cumulative (Project) Variant scenario. This would be caused by the reduced capacity of the fourth travel lane due to the HOT lane configuration proposed in the Project Variant. Implementing mitigation measure M-TR-5 (i.e., allowing mixed flow traffic to use the fourth southbound lane proposed for 19th Avenue instead of creating a HOT lane) would reduce Project Variant-related impacts at this intersection to less-than-significant levels. However, the HOT lanes configuration was intended to provide a benefit to transit and to encourage high-occupancy vehicles. The mitigation measure would have a significant secondary impact on transit due to the conversion of the HOT lanes to mixed flow. Due to the generally constrained environment, providing additional travel lanes on 19th Avenue beyond the extra southbound lane proposed is not feasible, and therefore mitigation measure M-TR-5's secondary impact to transit would remain significant.
- Implementation of the sub-variant in conjunction with the Proposed Project would result in the same significant cumulative impacts at study intersections as identified in Impacts TR-35 and TR-36 for cumulative conditions with the Proposed Project. This impact would be significant and unavoidable with mitigation.
- Implementation of the sub-variant in conjunction with the Project Variant would result in the same significant cumulative impacts at study intersections as identified in Impact TR-

38 for cumulative conditions with the Project Variant. This impact would be significant and unavoidable with mitigation.

- Implementation of the Proposed Project would contribute to significant cumulative traffic impacts at four freeway segments: Southbound SR 1 (Junipero Serra Boulevard): Weaving Segment Between On-ramp from Brotherhood Way and Direct Off-ramp to John Daly Boulevard; Northbound SR 1 (Junipero Serra Boulevard): Basic segment between Off-Ramp to Northbound I-280 and On-Ramp from John Daly Boulevard; Northbound SR 1 (Junipero Serra Boulevard): Weaving Segment between On-Ramp from John Daly Boulevard to Off-Ramp to Alemany Boulevard;and Northbound SR 1 (Junipero Serra Boulevard): Weaving Segment Between Loop On-ramp from Brotherhood Way and Loop Off-ramp to Brotherhood Way. These impacts would be significant and unavoidable with mitigation.
- Implementation of the Project Variant would contribute to significant cumulative traffic impacts at four freeway segments expected to experience significant cumulative impacts under future conditions with the Proposed Project, as identified in Impact TR-41. This impact would be significant and unavoidable with mitigation.
- Implementation of the sub-variant, either in conjunction with the Proposed Project or the Project Variant, would contribute to significant cumulative traffic impacts at four freeway segments expected to experience significant cumulative impacts under future conditions with the Proposed Project, as identified in Impact TR-41. This impact would be significant and unavoidable with mitigation.
- The Proposed Project would contribute transit ridership to Study Area screenlines expected to exceed available capacity under 2030 cumulative conditions. This impact would be significant and unavoidable with mitigation.
- Implementation of the Project Variant would result in significant impacts on the same Muni Study Area Screenlines as identified in Impact TR-43 for the Proposed Project. (This impact would be significant and unavoidable with mitigation.
- Implementation of the sub-variant, either in conjunction with the Proposed Project or the Project Variant, would result in significant impacts on the same Muni Study Area Screenlines as identified in Impact TR-43 for the Proposed Project. This impact would be significant and unavoidable with mitigation.

NOISE

The following impacts on Noise would be significant and unavoidable:

- Increases in Project-related traffic would generate noise levels above existing ambient conditions. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.
- Increases in traffic from Project-generated vehicle trips in combination with other development would result in cumulative noise increases. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.
- Project-related light rail noise and vibration levels would increase above existing ambient conditions. Implementation of Mitigation Measure M-NO-5 would ensure that the proposed realignment of the light rail line and its operations would be designed in a

manner that would reduce the potentially significant noise and vibration impacts to a less-than-significant level. However, this measure would require discretionary approval actions by the SFMTA, is considered uncertain because public agencies subject to CEQA cannot commit to implementing any part of a proposed project, including proposed mitigation measures, until environmental review is complete. Therefore, this impact would be significant and unavoidable.

- Operation of stationary noise sources (e.g., district energy system, wind turbines) would increase existing noise levels, potentially exceeding noise level standards. To ensure that adequate performance of the attenuating features would be achieved, operational noise levels of the stationary noise sources would be monitored and if stationary noise sources were found to exceed the applicable noise standards, additional noise attenuation measures would be applied in order to meet the applicable noise standards. However, shielding the wind turbines and other stationary noise sources from noise sensitive land uses may diminish the utility or efficiency of the system, and the feasibility and effectiveness of the noise attenuation that could be featured with the final design are not known at this time. Therefore, this impact would be significant and unavoidable.

AIR QUALITY

The following impacts on Air Quality would be significant and unavoidable even with implementation of mitigation measures identified in this EIR. Mitigation measures would reduce the significant impact, but not to less-than-significant levels.

- Construction of the Proposed Project could expose persons to substantial levels of toxic air contaminants, which may lead to adverse health effects. Mitigation Measure M-AQ-3 would reduce but not eliminate this significant impact.
- The Proposed Project's operations could affect regional air quality. Feasible emission reduction measures would reduce but not eliminate this significant impact.
- The Proposed Project could result in cumulative air quality impacts. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.

The following impacts on Air Quality would be significant and unavoidable under the Draft BAAQMD CEQA Air Quality Guidelines and Proposed Thresholds even with implementation of mitigation measures identified in this EIR.

- Construction-related impacts to regional air quality under proposed guidelines. Mitigation would reduce but not eliminate this significant impact.
- Construction-related impacts of toxic air contaminants and adverse health effects under proposed guidelines. Mitigation would reduce but not eliminate this significant impact.
- Operation-related impacts to regional air quality under proposed guidelines. Mitigation would reduce but not eliminate this significant impact.
- Operation-related impacts to sensitive receptors and substantial pollutant concentrations of toxic air contaminants under proposed guidelines. Mitigation would reduce but not eliminate this significant impact.

- Cumulative construction impacts under proposed guidelines. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.
- Cumulative criteria pollutant impacts under proposed guidelines. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.
- Cumulative DPM, $PM_{2.5}$, and TAC impacts under proposed guidelines. Because no feasible mitigation measures were identified, this impact would be significant and unavoidable.

WIND

The following impacts on Wind would be potentially significant and unavoidable even with implementation of mitigation measures identified in this EIR. In many cases, mitigation measures would reduce the significant impact, but not to less-than-significant levels.

- The phased construction of the Proposed Project could result in a temporary increase in the number of hours that the 26-mph wind hazard criterion is exceeded or an increase in the area that is subjected to winds greater than 26 mph. Implementation of Mitigation Measures M-WS-1a and M-WS-1b would reduce some, but possibly not all, potentially significant wind impacts to less-than-significant levels.
- The proposed Special Use District could result in increases in the number of hours that the 26-mph wind hazard criterion is exceeded or increases in the area that is subjected to winds greater than 26 mph. Under the proposed Special Use District, in certain locations on the Project Site, there is the potential to construct buildings that are slightly taller or shorter, bulkier or less bulky, in different locations, or oriented differently than the buildings and locations currently proposed under the Proposed Project. If any buildings were constructed to be taller or shorter, bulkier or less bulky, or if they are relocated or reoriented, these design changes could affect the flow of wind currents, thereby altering the ground-level wind impacts on pedestrians. These wind impacts could be different from the wind impacts of the Proposed Project, and some of these wind impacts could be potentially significant. Implementation of Mitigation Measures M-WS-1a and M-WS-1b would reduce some, but possibly not all, potentially significant wind impacts to less-than-significant levels.

BIOLOGICAL RESOURCES

The following impacts on Biological Resources would be significant and unavoidable even with implementation of mitigation measures identified in this EIR. In many cases, mitigation measures would reduce the significant impact, but not to less-than-significant levels.

- Operation of the 51 proposed wind turbines on the western periphery of the Project Site could have a substantial adverse effect on special-status species, interfere substantially with bird or bat movement and migration corridors, and interfere substantially with raptor nest sites. Measures M-BI-8a, 8b, 8c, 8d, and 8e would reduce but not eliminate these significant impacts.

C. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL IMPACTS

Significant irreversible environmental changes would occur with implementation of the Proposed Project and variants. Development would involve irreversible use of resources to construct buildings and infrastructure, including lumber, concrete, sand, gravel, masonry, metals, and water. However, development would not be expected to involve an unusual commitment of these resources, nor would it be expected to consume any of these resources in a wasteful manner. Construction of buildings and infrastructure, and occupancy at buildout, would use energy resources in the form of fossil fuels. During construction, diesel and gasoline fuels would be consumed to operate construction equipment. During operation, diesel and gasoline fuels would be consumed to operate the buses that would provide transportation serving the Project Site, and for the automobiles and trucks that would visit the Project Site. Natural gas would be used for heating and cooling. Because individual buildings would be required to comply with the San Francisco Green Building Ordinance, which includes energy conservation requirements that exceed those in the California Building Code, energy would not be used in a wasteful, inefficient or unnecessary manner.

D. AREAS OF KNOWN CONTROVERSY AND ISSUES TO BE RESOLVED

A Notice of Preparation (NOP) was distributed on May 20, 2009, announcing its intent to prepare and distribute an EIR. The public review period began on May 20, 2009 and ended on June 19, 2009. A Public Scoping Meeting was held on June 8, 2009. Twenty-seven individuals spoke at the Public Scoping Meeting. During the public review period, 26 comment letters were submitted to the Planning Department by public agencies and other interested parties. (The Public Scoping Summary Report is included as Appendix A of this EIR.)

Raised environmental issues of concern include:

- Impacts on Land Use;
- Impacts on Aesthetics;
- Impacts on Population and Housing;
- Impacts on Historic Resources/Preservation;
- Impacts on Transportation;
- Impacts on Air Quality;
- Impacts on Wind;
- Impacts on Recreation and Open Space;
- Impacts on Utilities (Water, Stormwater) and Sustainability;
- Impacts on Biological Resources;
- Impacts on Geology;
- Impacts on Hazards;
- Impacts on Hydrology and Water Quality ;
- Impacts on Hazards; and
- The need for Alternatives to be analyzed.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the Proposed Project and discusses the environmental effects associated with them. The *CEQA Guidelines* require that an EIR describe a reasonable range of feasible alternatives to the proposed project that could attain most of the basic project objectives. The alternatives considered should focus on elimination or reduction of significant adverse impacts caused by the proposed project. An EIR need not consider every conceivable alternative to the project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives that are infeasible. The determination of feasibility will be made by project decision-makers based on substantial evidence in the record, which includes, but is not limited to, information presented in the EIR, comments received on the Draft EIR, and responses to those comments.

The analysis of alternatives is of benefit to decision-makers because it provides more complete information about the impacts of land use decisions, and consequently a better understanding of the inter-relationships among all of the environmental topics under evaluation. The City must consider approval of an alternative if that alternative would substantially lessen or avoid significant environmental impacts identified for a Proposed Project and that alternative is determined to be feasible.

The following alternatives to the Proposed Project are discussed and evaluated in this chapter: A. No Project Alternative; B. Buildout Under Current Zoning Regulations Alternative, C. Retention of the Historic District Central Core Alternative, D. Partial Historic District Alternative, E. Full Buildout with Transit Options Alternative, and F. No Muni Realignment Alternative.

This chapter also discusses alternatives to the Proposed Project that were considered but not analyzed further because they were rejected as infeasible or failed to meet key Project Sponsor objectives. These include an Infill Development within the Historic District Alternative, and a West-Side Partial Historic District Alternative.

A. NO PROJECT ALTERNATIVE

CEQA (*CEQA Guidelines* Section 15126.6) requires an EIR to evaluate a No Project Alternative. The purpose of the No Project Alternative is to allow decision-makers to compare the effects of the Proposed Project with the effects of taking no action.

DESCRIPTION

Under the No Project Alternative, the site would remain in its existing condition. This alternative would not introduce a comprehensively replanned or redesigned 152-acre site. (See Figure VII.1: No Project Alternative.) The existing 3,221 residential units located in 11 towers and 170 two-story buildings would remain. There would be no new construction of any residential, commercial, retail, or any other new uses on the site. There would be no on- or off-site infrastructure improvements planned, including transit and transportation improvements. The site would remain under existing density and height and bulk standards defined for the RM-4, RM-1, and RH-1(D) Zoning Districts, and the 130-D and 40-X height and bulk districts.

ENVIRONMENTAL ANALYSIS

This analysis assumes that the existing on-site structures and uses would not change and the existing physical conditions in the project vicinity, as described in detail for each environmental topic in Chapter V, Environmental Setting and Impacts, would remain the same. If the No Project Alternative were implemented, none of the impacts associated with the Proposed Project would occur. The Proposed Project's significant and unavoidable project and cumulative impacts described in Chapter V, Environmental Setting and Impacts, under Section V.B, Aesthetics; Section V.D, Cultural Resources; Section V.E, Transportation and Circulation, Section V.F, Noise; Section V.G, Air Quality; and Section V.M, Biological Resources, would not occur. In addition, the less-than-significant effects (including those that would be mitigated to less-than-significant levels) of the Proposed Project described in Chapter V for the following environmental topics would not occur with this alternative: land use; aesthetics; population and housing; archaeological and paleontological resources; transportation and circulation; greenhouse gas emissions; wind and shadow; recreation; utilities and services systems; public services; biological resources; geology and soils; hydrology and water quality; hazards/hazardous materials; minerals and energy resources; and agricultural resources. None of the Project Sponsor's objectives would be attained.

SOURCE: SOM, Turnstone Consulting

PROJECT BOUNDARY | ON GRADE PARKING | GARAGE PARKING | LEASING OFFICE | PRESCHOOL | MAINTENANCE | RESIDENTIAL | EXISTING MUNI M OCEANVIEW LIGHT RAIL LINE CONFIGURATION

FIGURE VII.1: NO PROJECT ALTERNATIVE

B. BUILDOUT UNDER CURRENT ZONING REGULATIONS ALTERNATIVE

DESCRIPTION

Under the Buildout Under Current Zoning Regulations Alternative ("Current Zoning Alternative"), all buildings on the 152-acre site would be completely demolished and rebuilt as a new residential neighborhood, consistent with allowable density and height and bulk standards under the existing RM-4, RM-1, and RH-1(D) Zoning Districts, and 130-D and 40-X height and bulk districts. (See Figure VII.2: Building Under Current Zoning Regulations Alternative.) Under this alternative, the existing 3,221 residential units would be demolished and 10,500 new residential units would be constructed (7,279 net new units). The new units would be located in either up to 130-foot-tall tower buildings in the northwestern and southeastern areas of the Project Site, or in new three- to four-story (40-foot-tall) low-rise buildings placed throughout the site. There would be no commercial, retail, school, or community center buildings proposed with this alternative. Under this alternative, there would be about 6 fewer acres of open space than in the Proposed Project. However, this open space would be primarily located within interstitial spaces between buildings and therefore would not be as contiguous as that under the Proposed Project. No athletic fields, walking and biking paths, or organic farm would be built on site.

As with the Proposed Project, the Current Zoning Alternative includes construction of (or provides financing for construction of) a series of traffic and transportation improvements designed to minimize the amount of automobile traffic originating from Parkmerced, and to improve traffic flow on adjacent roadways such as 19th Avenue and Brotherhood Way. These improvements include rerouting the M Ocean View line from its current alignment along 19th Avenue, as well as providing modifications along 19th Avenue to accommodate the new route. Similar to the Proposed Project, the new alignment would leave 19th Avenue at Holloway Avenue, continue southwest toward the intersection of Crespi and Gonzalez Drives, continue along the eastern edge of the neighborhood core toward the intersection of Font Boulevard and Gonzalez Drive. At that point, about half of the M Ocean View streetcars would turn east on Felix Avenue and exit Parkmerced to the south at the intersection of 19th Avenue and Junipero Serra Boulevard and continue to Balboa Park. The other half would terminate at a new station at the intersection of Font Boulevard and Chumasero Drive.

Other traffic and roadway improvements would include intersection realignment and a new signalized left turn into the site in the vicinity of Crespi Drive (accessed from northbound 19th Avenue); conversion of a shared lane on 19th Avenue at Junipero Serra into a third northbound left-turn lane; construction of a second dedicated northbound through lane on Junipero Serra at 19th Avenue; realignment of and a new signalized left-turn lane constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard); reconfiguration of the Chumasero Drive/Brotherhood Way intersection; implementation of traffic calming features and a new

bicycle lane along Brotherhood Way; and construction of additional access points along Lake Merced Boulevard.

Unlike with the Proposed Project, only a portion of the Sustainability Plan would be proposed under this alternative. There would be no wind turbines to offset a portion of the energy demand; however, there would likely be some sustainability components such as photovoltaic cells, energy-efficient appliances, energy-efficiency lighting, and "smart meters".[1] As under existing conditions, stormwater runoff from buildings and streets would flow into the combined sewer and stormwater lines that lead to the Oceanside Water Pollution Control Plant.

ENVIRONMENTAL ANALYSIS

Land Use

Unlike the Proposed Project, the Current Zoning Alternative would not conflict with the Planning Code and *General Plan* height and bulk controls or with any other land use plan, policy, or regulation of any agency with jurisdiction over the Project Site. Under this alternative, all of the existing buildings on the Project Site would be demolished to accommodate the construction of 10,500 new residential units (7,279 net new units). Construction of these units would be in conformity with the density, height, and bulk standards of the existing RM-4, RM-1, and RH-1(D) Zoning Districts and the 130-D and 40-X height and bulk districts, a PUD would be required for all units above 10,302. Under this alternative, 42 residential tower buildings (up to 130 feet tall) would be constructed in the northwest and southeast corners of the Project Site, in the areas currently designated as 130-D height and bulk districts. About 60, 30- to 40-foot-tall low-rise residential buildings would be constructed on the remainder of the site in areas currently designated as a 40-X height and bulk districts. Although construction of the Current Zoning Alternative would result in the complete physical alteration of the site and would include adding more taller buildings and increasing density on the site, the residential uses contained in the proposed buildings would be compatible with the existing uses on and adjacent to the Project Site. This alternative would not physically disrupt or divide the established residential community or adversely affect the existing character of the vicinity. Therefore, the Current Zoning Alternative would have less-than-significant project-level and cumulative impacts on land use.

[1] As with all new construction, this alternative would be required to comply with all applicable local laws related to sustainability and GHG emissions reduction, including the Green Building Ordinance, Construction and Demolition Debris Recovery Ordinance, and Universal Recycling and Composting Ordinance.

HARDING PARK GOLF COURSE

LAKE MERCED

SAN FRANCISCO STATE UNIVERSITY

SAN FRANCISCO GOLF CLUB

MERCED HEIGHTS PLAYGROUND

BROOKS PARK

BROTHERHOOD CHESTER MINI-PARK

RM-4

RM-1

RH-1(D)

Font Boulevard

Vidal Drive

Pinto Avenue

Acevedo Avenue

Higuera Avenue

Serrano Drive

Holloway Avenue

Garces Drive

Brotherhood Way

Lake Merced Boulevard

Arballo Drive

Tapia Drive

Rivas Drive

Bucareli Drive

Grijalva Drive

Josepha Avenue

Gonzalez Drive

Juan Bautista Circle

Fuente Street

Cardenas Ave.

Crespi Drive

Varela Ave.

Diaz Avenue

Cambon Dr.

Castelo Ave.

Felix Avenue

Junipero Serra Boulevard

19th Avenue

Denslowe Drive

Stratford Drive

Banbury Drive

Garfield Street

Beverly Street

Monticello Street

Byxbee Street

Ralston Street

Vernon Street

Shields Street

Sargent Street

Randolph Street

Chester Avenue

St. Charles Ave.

N

0 400

FEET

SOURCE: SOM, Turnstone Consulting

PROJECT BOUNDARY

PROPOSED TOWER UP TO 14 STORIES: MAX 130'

PROPOSED LOWRISE 3-4 STORIES: 30'-40'

PROPOSED MUNI M OCEANVIEW LIGHT RAIL LINE CONFIGURATION

PARKMERCED PROJECT

FIGURE VII.2: BUILDOUT UNDER CURRENT ZONING REGULATIONS ALTERNATIVE

Aesthetics

Development under this alternative would cause project-level and cumulative impacts that are substantially similar to those described for the Proposed Project in Section V.B, Aesthetics. Similar to the Proposed Project, development under the Current Zoning Alternative would require that all the existing two-story garden apartment buildings, along with nearly all of the existing landscaping, be removed. All of the existing tower buildings would also be demolished under this alternative. Like the Proposed Project, the demolition of buildings and landscaping proposed under the Current Zoning Alternative would eliminate a visual/scenic resource of the built environment and would be a significant and unavoidable impact. No mitigation measures are available that would reduce this impact to a less-than-significant level.

Population and Housing

Under the Current Zoning Alternative, the existing 3,221 residential units would be demolished and 10,500 new residential units would be constructed (7,279 net new units), increasing the on-site residential population from about 7,340 people to about 23,940 people in 2030. (This alternative would introduce 1,600 more units [3,650 people] than the Proposed Project would.) The increase in Parkmerced's residential population proposed under the Current Zoning Alternative would substantially change the existing areawide population, but, as under the Proposed Project, not beyond expected growth incorporated into local and regional planning efforts.

Under the Current Zoning Alternative, the existing leasing office and school would be demolished. There would be no new retail, commercial, or office uses, school, or fitness facility constructed. Though there is no specific maintenance building proposed under this alternative, it is likely that there would be a maintenance staff. Since there are no retail, commercial, office, school or fitness center uses proposed under this alternative, there would be fewer total employees than identified under the Proposed Project. As under the Proposed Project, employment under this alternative would not create a substantial demand for housing in the neighborhood, San Francisco, or the region in excess of the housing provided as part of the Proposed Project or housing otherwise available in the Bay Area. Similar to the Proposed Project, the amount of housing provided by the Parkmerced Project would exceed demand generated by project-generated employees. Therefore, the Current Zoning Alternative would have less-than-significant project-level and cumulative impacts on population and housing.

Cultural Resources

Historic Architectural Resources

Demolition under this alternative would cause impacts that are substantially similar in character to those described for the Proposed Project in Section V.D.a, Cultural Resources (Historic Architectural Resources). Development under the Current Zoning Alternative would demolish all existing structures on the Project Site. The existing architectural character of the Project Site would be completely transformed under this alternative, impairing the characteristics of the Parkmerced historical resource that convey its historic and architectural significance and that justify its eligibility for inclusion in the California Register of Historical Resources (CRHR). No integrity of Design, Setting, Materials, Workmanship, Feeling, and Association would remain with implementation of the demolition. No mitigation measures are available that would reduce this impact to a less-than-significant level. Therefore, project-level and cumulative impacts would be significant and unavoidable.

Archaeological and Paleontological Resources

Project construction activities under this alternative would require disturbance of previously undisturbed earth underlying the Project Site that is substantially similar in location, character, and scope to that described for the Proposed Project in Section V.D.b, Cultural Resources (Archaeological and Paleontological Resources). For this reason, the analysis and conclusions of that EIR section are the same for this alternative. The Current Zoning Alternative would have less-than-significant project level and cumulative impacts on archaeological and paleontological resources, with mitigation.

Transportation and Circulation

Traffic and circulation improvements under the Current Zoning Alternative would be identical to those proposed for the Proposed Project, including rerouting the M Ocean View into the Parkmerced site and constructing a fourth mixed-flow traffic lane on southbound 19th Avenue between Holloway Avenue and Junipero Serra Boulevard.

A detailed discussion of the transportation analysis of the Current Zoning Alternative is provided in the *Transportation Study.*[2] The conclusions from the *Transportation Study* are summarized here.

[2] Fehr & Peers, 2009, *Final Transportation Impact Analysis*. This document is available for public review at the Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

Travel Demand

The Current Zoning Alternative would generate more trips than the Proposed Project. The Proposed Project would generate a net increase of 82 transit trips and 1,621 vehicle trips in the AM peak hour and 494 transit trips and 3,101 vehicle trips in the PM peak hour. The Current Zoning Alternative would generate a net increase of 595 transit trips and 2,919 vehicle trips in the AM peak hour and 860 transit trips and 3,747 vehicle trips in the PM peak hour. Additional discussion of the Current Zoning Alternative travel demand is included in the *Transportation Study.*

Construction Impacts

Construction activities associated with the Current Zoning Alternative would be similar to those described for the Proposed Project. Because the Current Zoning Alternative consists of a single use (residential), it is possible that construction could be less intense, but would likely occur over a longer period of time, depending on the market's ability to absorb that many additional residential units. However, disruptions to 19th Avenue associated with re-aligning the Muni light rail tracks would be the same as with the Proposed Project. Localized construction-related traffic impacts would therefore remain significant and unavoidable.

Intersection Conditions

The Current Zoning Alternative would have somewhat greater project and cumulative effects at study intersections compared to the Proposed Project, described in Section V.E, Transportation and Circulation (Impacts), because it would generate more vehicle traffic.

Specifically, the Current Zoning Alternative would have significant impacts at the same locations as the Proposed Project, although they would be somewhat exacerbated due to greater traffic levels. Further, the Current Zoning Alternative would create additional significant project-level and cumulative impacts under project and cumulative conditions.

Under project conditions, the Current Zoning Alternative would have additional significant impacts at the Lake Merced Boulevard/Higuera Avenue intersection in the AM peak hour and the Lake Merced Boulevard / Gonzalez Drive intersection in the AM and PM peak hours. A mitigation measure was described in the Transportation Study to reduce impacts at the Lake Merced Boulevard/Higuera Avenue intersection to less-than-significant levels that would involve constructing dedicated westbound left-turn and right-turn lanes. The feasibility of mitigation measures to reduce impacts at the Lake Merced Boulevard/Gonzalez Drive intersection to less-than-significant levels is uncertain, because a double westbound left-turn lane and additional northbound through lane needed at Lake Merced Boulevard/Gonzalez Drive could cause pedestrian safety issues.

For these reasons, implementation of the Current Zoning Alternative would result in two additional project-level intersection impacts compared to the Proposed Project. One of those additional impacts could be mitigated to less-than-significant levels and one of those impacts would be significant and unavoidable.

Under cumulative conditions, the Current Zoning Alternative would create significant cumulative impacts at the same study intersections as the Proposed Project, although they would be slightly exacerbated because the Current Zoning Alternative would generate more vehicle traffic. In addition, the Current Zoning Alternative would cause significant cumulative impacts (or cumulatively considerable contributions to cumulative impacts) at four additional intersections compared to the Proposed Project, including 19th Avenue/Junipero Serra Boulevard in the PM peak hour, Lake Merced Boulevard/Higuera Boulevard in the AM peak hour, Lake Merced Boulevard/Vidal Drive in the AM peak hour, and Lake Merced Boulevard/Acevedo Drive in the AM peak hour. The same mitigation measure recommended in the Transportation Study to reduce the project-level impact at the Lake Merced Boulevard/Higuera Avenue intersection to less-than-significant levels would also reduce the Current Zoning Alternative's contribution to cumulative impacts at this intersection to less-than-significant levels. The feasibility of mitigation measures to reduce the Current Zoning Alternative's contribution to significant cumulative impacts at Lake Merced/Boulevard/Vidal Drive, Lake Merced Boulevard/Acevedo Drive, and Lake Merced Boulevard/Junipero Serra Boulevard is uncertain, thus and cumulatively considerable contributions would remain significant and unavoidable at these intersections.

Freeway Conditions

The Current Zoning Alternative would cause significant project-level and cumulative impacts to the same freeway mainline sections, weaving sections, and ramp junction conditions as the Proposed Project, although they would be somewhat more severe because the Current Zoning Alternative would generate more vehicle traffic. These project-level and cumulative impacts would be significant and unavoidable.

Transit Impacts

Impacts on transit capacity utilization associated with the Current Zoning Alternative would be somewhat greater than with the Proposed Project. The Current Zoning Alternative would have a significant and unavoidable impact at the study area screenlines under existing plus project and cumulative conditions. These would be somewhat greater than with the Proposed Project.

Although the Current Zoning Alternative would generate more transit ridership than the Proposed Project, the increases to Downtown Screenlines and Regional Screenlines would likely be accommodated within the available capacity for existing plus project and cumulative conditions,

and the Current Zoning Alternative's impact at Downtown Screenlines and Regional Screenlines would be less than significant under existing plus project and cumulative conditions.

Similar to the Proposed Project, the Current Zoning Alternative would cause impacts on transit travel times due to traffic congestion. The Proposed Project would cause significant impacts on six transit lines in one or more peak hours (treating the 28 19th Avenue and the 28L 19th Avenue Limited as one line). The Current Zoning Alternative would result in the same number of significant impacts as the Proposed Project, although the magnitude of the impact associated with traffic congestion would be increased.

Development of the Current Zoning Alternative would require two additional buses and one light-rail vehicle in the AM peak hour; and eight buses and one light-rail vehicle in the PM peak hour. Essentially, this is the same as the Proposed Project, but with an additional bus required during the PM peak hour for the 18 46th Avenue bus line (three total for this line over existing conditions).

The Current Zoning Alternative would have significant and unavoidable impacts on the same transit routes as the Proposed Project.

Bicycle Impacts

The Current Zoning Alternative bicycle trips would be accommodated within the proposed street and bicycle network. Similar to the Proposed Project, bicycle impacts would be less than significant. No mitigation measures are required.

Pedestrian Impacts

The pedestrian network and improvements would not change materially between the Proposed Project and the Current Zoning Alternative. Generally, the pedestrian environment would be improved compared to existing conditions. Under Current Zoning Alternative conditions, the M Ocean View station would be relocated from the current station in the median of 19th Avenue to be within the Project Site. Impacts on pedestrian circulation associated with the Current Zoning Alternative would be considered less than significant, and no mitigation measures are required.

Parking

The Current Zoning Alternative would have a different land use program than the Proposed Project. The proposed parking supply for this alternative has not been identified, and it is therefore possible that there would be a parking shortfall, similar to the Proposed Project. However, parking shortfalls are not considered to be physical environmental impacts under CEQA.

The Current Zoning Alternative would have no impacts on other transportation conditions (loading, air traffic, and emergency access).

Noise

The Current Zoning Alternative, compared to the Proposed Project, would provide increased housing density and a wider extent of construction activity, especially for demolition of all of the existing buildings on the Project Site and development of a greater number of new residential units. Noise and vibration impacts associated with construction of the Current Zoning Alternative and impacts from operation of stationary noise sources like the district energy system would be substantially similar to those described for the Proposed Project, and the same mitigation measures would be applicable, although this alternative would not include noise from wind turbines. Motor vehicle traffic noise levels would increase and the resulting project-level and cumulative impacts would be significant and unavoidable, as they would be with the Proposed Project.

The Current Zoning Alternative would bring the light rail alignment, and its associated noise and vibration impact, into the site. This impact would be less than significant with mitigation, as with the Proposed Project. Because this alternative would not include a school site, this aspect of Mitigation Measure M-NO-6 would not apply, but the remainder of the mitigation measure would be needed to ensure less-than-significant project-level and cumulative noise impacts due to residences potentially being located in an incompatible noise environment.

Air Quality

The Current Zoning Alternative would involve a higher level of construction activity, and emissions, due to a greater level of demolition and development of a greater number of residential units compared to the Proposed Project. Although quantities would be somewhat higher, construction phase emissions, emissions related to operations, and how the emissions affect regional and localized air quality conditions, would cause impacts that are substantially similar in character to those described for the Proposed Project. Like the Proposed Project, the construction activities and operation related to the Current Zoning Alternative would cause emissions exceeding the existing and proposed BAAQMD thresholds of significance, and emissions under this alternative would cause significant and unavoidable project-level and cumulative impacts to regional air quality and localized impacts related to particulate matter.

Because the Current Zoning Alternative would involve exclusively residential development, without the mixed land uses and other uses providing employment and services for the Proposed Project, the Proposed Project would provide a higher level of consistency with regional air quality plans. However, by including traffic and transportation improvements designed to reduce the

amount of automobile traffic originating from Parkmerced, the Current Zoning Alternative would not conflict with regional air quality management plans.

Greenhouse Gas Emissions

This alternative would involve a higher level of construction-related and motor vehicle related greenhouse gas (GHG) emissions compared to the Proposed Project, due to the greater levels of demolition, construction activity, and buildout density. Incrementally higher levels of GHG emissions would also be associated with electricity use, waste generation, water use, and natural gas use, due to the greater number of residents, as well as and implementation of only a portion of the proposed Sustainability Plan. However, these increases would be relatively minor compared to motor vehicle emissions. As with the Proposed Project, this alternative would be consistent with local GHG reduction goals. The higher levels of GHG emissions associated with the Current Zoning Alternative would occur as a result of serving a larger population than the Proposed Project, resulting in a similar level of GHG efficiency, which would ensure that impacts to global climate change and the Climate Action Plan would be less than significant.

Wind

Compared to the Proposed Project, which would have 22 tower buildings (11 existing and 11 proposed) at least 130 feet tall, the Current Zoning Alternative would have a total of 42 tower buildings approximately 130 feet tall in the northwest and southeast corners of the Project Site. With 42 proposed tower buildings, the Current Zoning Alternative could result in significant wind impacts in the northwest and southeast corners of the Project Site. The remainder of the Project Site would be developed with shorter buildings (30 feet to 40 feet in height). In general, shorter buildings have lesser wind impacts than taller buildings. However, one mitigation measure identified for the Proposed Project (Mitigation Measure M-WS-1a, which requires additional wind impact analysis for proposed buildings that exceed 100 feet in height) would still be applicable to this alternative to mitigate potentially significant wind impacts to less-than-significant levels. Under the Current Zoning Alternative, the wind impacts on the remainder of the Project Site would be similar to or less than the project-level and cumulative wind impacts of the Proposed Project. As with the Proposed Project, during the phased construction of this alternative, there could be temporary wind impacts that are potentially significant and unavoidable, even with the implementation of Mitigation Measures M-WS-1a and M-WS-1b.

Shadow

Compared to the Proposed Project, which would have 22 tower buildings (11 existing and 11 proposed) at least 130 feet high, the Current Zoning Alternative would have a total of 42 tower buildings approximately 130 feet high in the northwest and southeast corners of the Project Site. With 42 proposed tower buildings, the Current Zoning Alternative could result in greater shadow

impacts on Lake Merced Park, Peace Park, and the San Francisco Golf Club; however, the impacts would continue to be less than significant as with the Proposed Project because the new shadows would not substantially affect the use of existing or proposed open space. The remainder of the Project Site would be developed with shorter buildings (30 feet to 40 feet in height). In general, shorter buildings have lesser shadow impacts than taller buildings. Under the Current Zoning Alternative, the shadow impacts from the proposed buildings on the remainder of the Project Site would be similar to or less than the project-level and cumulative shadow impacts of the Proposed Project, which are less than significant.

Recreation

Under the Current Zoning Alternative, the existing 3,221 residential units would be demolished and 10,500 new residential units would be constructed (7,279 net new units). This would result in about 3,650 more residents than the Proposed Project. Although there would be about 62 acres of open space provided as courtyards and areas adjacent to residential buildings (about 6 fewer acres than proposed with the Project), there would not be any system of neighborhood parks, playgrounds, and open spaces with public plazas, courtyards, greenways, nor any athletic fields or walking and biking paths, as proposed with the Project. The increase in population and employment and its concentration in this area would likely result in an increased demand for and use of existing neighborhood parks, recreational facilities, and open space, as well as increased demand and use of the adjacent Citywide, state, and federal recreation facilities, particularly since there would be no development of private recreational facilities, such as fields or playgrounds, constructed on the Project Site. However, given the amount of recreational space available near Parkmerced, including Lake Merced Park and the other open spaces in the vicinity of the Project Site, as discussed in Section V.J, Recreation, on pp. V.J.7-V.J.9, it is unlikely that the increased use of recreational resources would occur to the point where there would be substantial physical deterioration or degradation of existing facilities, nor would it result in the need for new or expanded facilities. Therefore, as with the Proposed Project, the Current Zoning Alternative would have less-than-significant project-level and cumulative impacts on recreation, and no mitigation measures are required.

Utilities and Services Systems

Water Supply

With 1,600 additional residential units and no new commercial space, the Current Zoning Alternative would result in a greater water demand than that estimated for the Proposed Project. The residential units in this alternative would use approximately 1.09 million gallons of water per

day (mgd),[3] compared to about 0.98 mgd for the Proposed Project, an increase of about 110,000 gallons per day, or about 10 percent more.[4] With a demand of 1.09 mgd, the alternative would account for 1.17 percent of the total water demand for San Francisco, compared to 1.04 percent for the Proposed Project. The change in demand compared to existing water use would be 0.41 percent of the total for the City, an increase compared to the change of 0.29 percent for the Proposed Project. This increase in water demand would exacerbate the water supply shortfall identified in the *Water Supply Assessment for the Parkmerced Project* (WSA) as expected to occur in the second and third years of a multiple dry-year drought in 2030.[5] Water demand with this alternative would increase the shortfall by about 25 percent, from 0.42 mgd to about 0.53 mgd. While additional conservation measures might be required for the City to meet the predicted shortfall, as described for the Proposed Project in Section V.K, Utilities and Services Systems, pp. V.K.12-V.K.18, the City has conservation programs in place, including Water Conservation Ordinances, as described in the *Water Shortage Allocation Plan* and the *Retail Water Shortage Allocation Plan*,[6] that would be implemented during multiple dry years to balance the supply and demand. Therefore, as with the Proposed Project, there would be adequate water to supply the development in the Current Zoning Alternative. Therefore, the alternative would not result in significant project-level or cumulative impacts on water supply and no mitigation measures are required.

Water Conveyance

The Current Zoning Alternative would replace most of the on-site water distribution system, as with the Proposed Project. As for the Proposed Project, the existing off-site water delivery infrastructure would be sufficient to meet the needs of the alternative. Therefore, as with the Proposed Project, the alternative would have no project-level or cumulative impacts on water infrastructure and no mitigation measures are required.

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[3] Hydroconsult Engineers, Inc., Technical Memorandum "Water and Wastewater Demands, Proposed Project Compared to Alternatives," March 29, 2010 (hereinafter "Water and Wastewater Tech. Memo, March 2010"). A copy of this Technical Memorandum is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA, in Case File No. 2008.0021E.

[4] The Current Zoning Alternative would not include use of recycled water. However, the water supply analysis for the Proposed Project did not assume that recycled water would be available to present a conservative approach to water demand. Therefore, water demand estimated for the Current Zoning Alternative is directly comparable to that used for the analysis of the Proposed Project.

[5] San Francisco Public Utilities Commission, *Final Water Supply Assessment for the Parkmerced Project*, November 2009, prepared by PBS&J, p.5-2.

[6] San Francisco Public Utilities Commission, Retail Water Shortage Allocation Plan, December 11, 2001. Available online at: http://sfwater.org/Files/FactSheets/Retail_Water_Shortage_Allocation_Plan_120101.pdf. Accessed May 4, 2010.

Wastewater

The Current Zoning Alternative would result in an increase in the volume of wastewater flows from the additional 1,600 residential units compared to the Proposed Project. No retail or commercial space would be built in this alternative, which would reduce but not eliminate the increase in wastewater flows. The increase in wastewater volume would be about 100,000 gallons per day (0.1 mgd) compared to the Proposed Project.[7] This would be an increase in flows from the Project Site of about 38 percent, compared to the increase of about 23 percent with the Proposed Project. With this alternative, average dry weather flows would increase from about 16.3 mgd to about 16.7 mgd. As the Oceanside Water Pollution Control Plant has the capacity to treat about 43 mgd of dry weather flows, the alternative would not cause the treatment plant to exceed its capacity or exceed any treatment requirements established in the National Pollution Discharge Elimination System permit. Therefore, no significant project-level or cumulative impacts would occur and no mitigation measures are required.

As described for the Proposed Project, the San Francisco wastewater collection system is sized to accommodate combined sanitary sewage and stormwater runoff. Therefore, although the alternative would result in greater sewage volumes, the increase would not require construction of new collection facilities. No significant project-level or cumulative impacts would occur and no mitigation measures are required.

Solid Waste

Demolition of existing structures and infrastructure under this alternative would generate more solid waste than the Proposed Project would because no existing buildings would be retained. The buildings to be demolished are of wood and concrete construction. Like the Proposed Project, to the extent practical, existing structures would be deconstructed, allowing for maximum reuse of materials in order to divert debris from the landfill. Operation of the Current Zoning Alternative would generate approximately 4,420 tons of solid waste per year. This is about 8 percent less than the Proposed Project, because the alternative would not include retail / commercial uses. Therefore, like the Proposed Project, no significant project-level or cumulative impacts would occur and no mitigation measures are required for the Current Zoning Alternative.

[7] Water and Wastewater Tech. Memo, March 2010, p. 4 of 6.

Public Services

Police

Under the Current Zoning Alternative, the existing 3,221 residential units would be demolished and 10,500 new residential units would be constructed (7,279 net new units), increasing the existing on-site residential population from about 7,340 people to about 23,940 people in 2030 (about 3,650 more residents than the Proposed Project). As with the Proposed Project, the increase in population would result in the need for a San Francisco Police Department (SFPD) substation on the Parkmerced Site to adequately serve the site and growth in the vicinity. With construction of a substation on the Project Site under this alternative, project-level and cumulative impacts on police services would be less than significant, and no mitigation measures are required.

Fire

Under the Current Zoning Alternative, the existing 3,221 residential units would be demolished and 10,500 new residential units would be constructed (7,279 net new units), increasing the existing on-site residential population from about 7,340 people to about 23,940 people in 2030 (about 3,650 more residents than the Proposed Project). As with the Proposed Project, the increase in population would result in the need for a San Francisco Fire Department (SFFD) substation, and likely a new fire station, on the Parkmerced Site to adequately serve the site and growth in the vicinity. With construction of a substation and fire station on the Project Site under this alternative, project-level and cumulative impacts on fire services would be less than significant, and no mitigation measures are required.

Schools

Under the Current Zoning Alternative, 7,279 net new housing units would be added to the Project Site, increasing the number of school-aged residents by about 1,475 students (about 350 more students than with the Proposed Project). Under current policies, the SFUSD would collect developer fees from the Proposed Project to help finance expansion of existing schools, construction of new schools, and rental of temporary classroom facilities. As with the Proposed Project, the 1,475 new students under this alternative would not result in the need for additional school facilities. There would be less-than-significant project-level and cumulative impacts on school facilities under the Current Zoning Alternative, and no mitigation measures are required.

Biology

Under the Current Zoning Alternative, all existing buildings would be demolished and, as with the Proposed Project, most of the existing on-site vegetation would be removed to make way for

new residential buildings. Existing trees and shrubs throughout the site provide nesting habitat for urban-adapted bird species. Vegetation removal and/or building demolition during the breeding season could remove trees, shrubs, and/or buildings that support active nests. All native birds and their nests are protected; however, with implementation of Mitigation Measure M-BI-4, which calls for conducting breeding bird surveys in construction areas and for creating buffers around confirmed nesting sites, this potentially significant impact would be reduced to a less-than-significant level.

Under the Current Zoning Alternative, 42, up to 130-foot-tall tower buildings would be constructed in the northwest and southeast corners of the Project Site. Similar to conditions that could be created under the Proposed Project, construction of the new towers in this alternative could affect bird migration and local movement if birds are injured or killed by colliding with the towers. This potentially significant impact would be reduced to a less-than-significant level by implementation of Mitigation Measure M-BI-9, which calls for incorporating design features that make it easier for birds to identify buildings, and avoiding the use of clear or reflective glass.

Unlike with the Proposed Project, no wind turbines are proposed under the Current Zoning Alternative, nor would there be a sustainability plan that includes the discharge of treated stormwater into Lake Merced. Therefore, biological impacts involving bird strikes, riparian habitat, or special status species would not occur and Mitigation Measures M-BI-1a, M-BI-1b, M-BI-1c, M-BI-2a, M-BI-2b, M-BI-2c, M-BI-3a, M-BI-3b, M-BI-7a, M-BI-7b, M-BI-8a, M-BI-8b, M-BI-8c, M-BI-8d, M-BI-8e, and M-BI-10 would not be applicable.

Hydrology and Water Quality

The Current Zoning Alternative would include demolition of all buildings on the Project Site and construction of a larger number of new buildings than in the Proposed Project. The types of construction impacts on water quality would be similar to those of the Proposed Project, and Mitigation Measure M-HY-1 would reduce those impacts to less-than-significant levels, as with the Proposed Project.

Existing stormwater runoff from the Project Site flows in the City's combined sewer system to the Oceanside Water Pollution Control Plant for treatment and discharge. Pollutants such as petroleum hydrocarbons, heavy metals, and tire dust are washed into the sewer system with stormwater flows. The Current Zoning Alternative would continue to direct all stormwater flows into the combined sewer system, where treatment would occur as it does now. The alternative would increase the pollutant load in the stormwater, but not in excess of the treatment capacity of the wastewater treatment plant. Therefore, the alternative would not result in significant impacts to water quality, and no mitigation measures are required.

The Current Zoning Alternative would not include the system planned in the Proposed Project to capture stormwater runoff and direct it away from the combined collection and treatment system. Therefore, the alternative would not reduce the volume of stormwater entering the system from the Project Site, and unlike the Proposed Project would not reduce the average annual number of combined sewer overflows. The increase in wastewater volumes would be small in relation to the overall combined flows during rainy weather, and would not result in an increase in the average annual number of combined sewer overflows. Therefore, while the alternative would not reduce overflows, it would not result in a significant project-level or cumulative impacts and no mitigation measures are required.

Minerals and Energy Resources

Unlike the Proposed Project, there would be no sustainability plan proposed under the Current Zoning Alternative. Therefore, there would be no renewable energy sources, such as wind turbines and photovoltaic cells installed to offset any portion of energy demand. Energy-efficiency measures exceeding Title 24 and any additional standards in the San Francisco Green Building Ordinance would not be proposed for new construction. These include using insulation that exceeds code requirements; installing windows with insulated glazing and low-conductivity window frames; using cogeneration, heat recovery ventilation, and heat pumps; and installing smart meters. Under this alternative, there would likely be an increase in site energy use compared to existing conditions. This would result in the use of greater amounts of fuel and energy than identified under the Proposed Project. Because new buildings would be required to comply with Title 24 standards and any additional standards in the San Francisco Green Building Ordinance, this alternative would not result in the use of excessive amounts of fuel and energy and would not cause a significant impact. As with the Proposed Project, there are no designated mineral resources or recovery sites on the Project Site, and no impact on mineral resources would occur.

Other Topics

For the topics of Archaeological Resources, Geology and Soils, Hazards, and Agricultural Resources, project-level and cumulative impacts identified for the Proposed Project would be nearly identical to those for the Current Zoning Alternative, since the soil disturbance under the alternative would have a similar amount of excavation and ground disturbance. Therefore, there would be no identified significant project-level or cumulative impacts for any of these topics. Any mitigation measure and/or improvement measure identified in these topics would be applicable under this alternative.

C. RETENTION OF THE HISTORIC DISTRICT CENTRAL CORE ALTERNATIVE

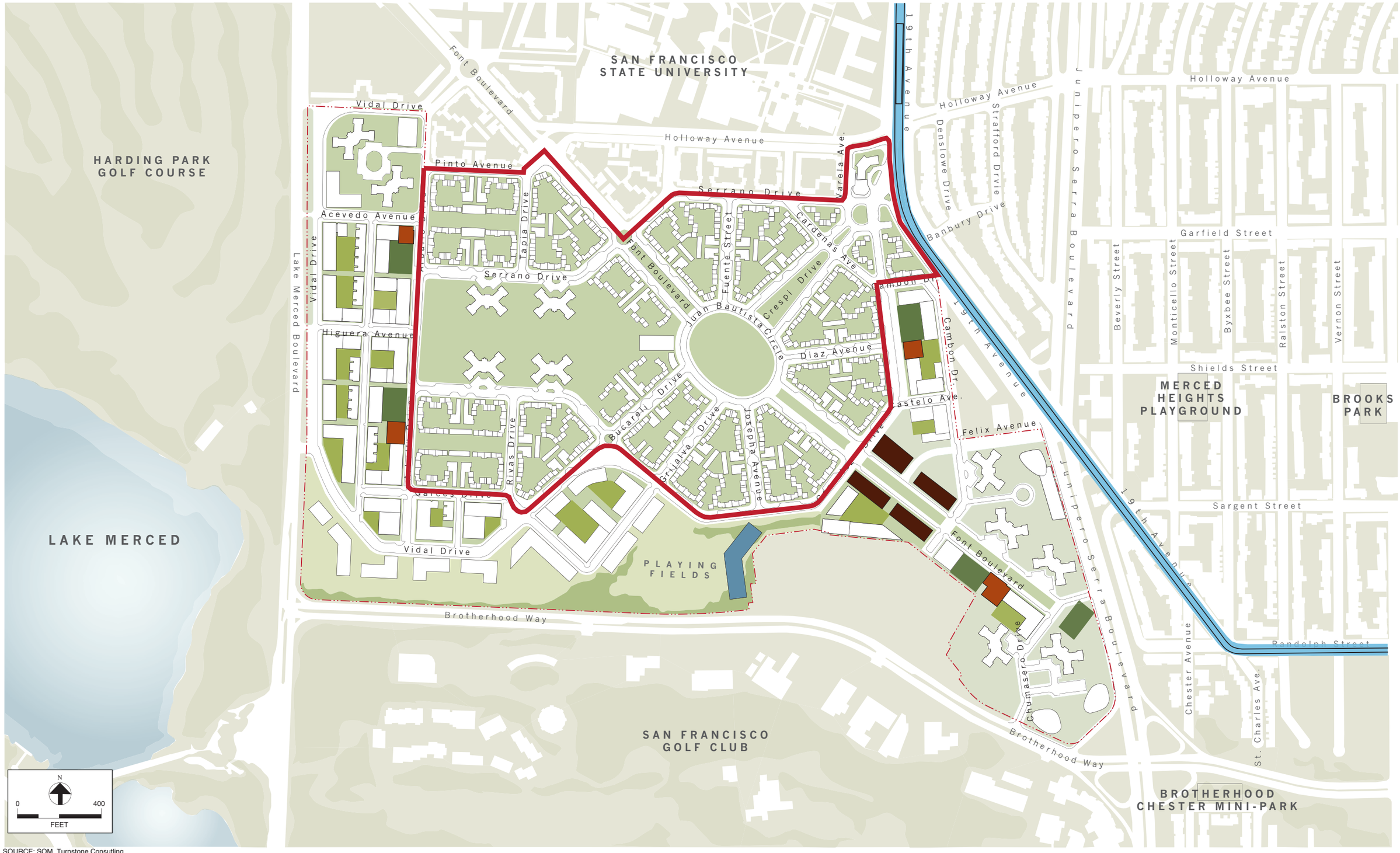
DESCRIPTION

Under the Retention of the Historic District Central Core Alternative ("Historic District Core"), 2,567 existing units located around the inner core of the site and in the 11 existing tower buildings would remain, and approximately 3,000 new units would be constructed primarily around the western and southern portions of the site, for a total of 5,567 [2,346 net new] units on the site (see Figure VII.3: Retention of the Historic District Central Core Alternative.) Also under this alternative, the existing 10,000-gross-squre-foot (gsf) pre-school would remain in its current location west of Juan Bautista Circle, as would the existing leasing center in the northeast corner of the Project Site. About 84,900 gsf of new retail, 55,900 gsf of new office space, and a new 64,000-gsf community center would be constructed in the eastern and southern areas of the site. Under this alternative, there would be about 74 acres of total open space, which is about 6 more acres than under the Proposed Project. The existing Meadow and Commons open space areas would remain, and new open space uses, including athletic playing fields and walking and biking paths, would also be constructed around the Project Site's perimeter. The Planning Code amendments would change the Height and Bulk District Zoning Map and would add a Special Use District (SUD) applicable to the entire Project Site.

Under the Historic District Central Core Alternative, the Muni light rail line would not be rerouted through the site due to financial infeasibility and site constraints; however, many of the other traffic and infrastructure improvements planned for the Proposed Project would be constructed. These include conversion of a shared lane on 19th Avenue at Junipero Serra into a third northbound left-turn lane; construction of a second dedicated northbound through lane on Junipero Serra at 19th Avenue; realignment of and a new signalized left-turn lane constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard); reconfiguration of the Chumasero Drive / Brotherhood Way intersection; implementation of traffic calming features and a new bicycle lane along Brotherhood Way; and reconfiguration of the Brotherhood Way intersections with Lake Merced Boulevard and Chumasero Drive.

Unlike the Proposed Project, there would be no combination of renewable energy sources, such as wind turbines and photovoltaic cells, to offset any portion energy demand. As under existing conditions, stormwater runoff from buildings and streets would be captured and flow into the combined sewer and stormwater lines that lead into the Oceanside Water Pollution Control Plant.[8]

[8] As with all new construction, this alternative would be required to comply with all applicable local laws related to sustainability and GHG emissions reduction, including the Green Building Ordinance, Construction and Demolition Debris Recovery Ordinance, and Universal Recycling and Composting Ordinance.



SOURCE: SOM, Turnstone Consulting

PROJECT BOUNDARY | PROPOSEDGROUND-FLOOR RETAIL | PROPOSED GROUND-FLOOR RETAIL/ OFFICE ABOVE | PROPOSED FITNESS CENTER | EXISTING RESIDENTIAL | EXISTING MUNI M OCEANVIEW LIGHT RAIL LINE CONFIGURATION

FIGURE VII.3: RETENTION OF THE HISTORIC DISTRICT CENTRAL CORE ALTERNATIVE

ENVIRONMENTAL ANALYSIS

Land Use

As with the Proposed Project, the Retention of the Historic District Core Alternative would conflict with the Planning Code and *General Plan* height and bulk controls. The proposed development around the periphery of the Project Site would require amendments to the Planning Code and the *General Plan* to change the Height and Bulk District Zoning Map, and as with the Proposed Project, a Special Use District would be proposed. Under Retention of the Historic District Core Alternative, 2,567 existing units located around the inner core of the site and in the 11 existing tower buildings would be retained, and approximately 3,000 new units would be constructed primarily around the western and southern portions of the site (for a total of 5,567 units on the site). Like the Proposed Project, this alternative would feature a mix of land uses: residential, retail, office, usable open space, a leasing office, a pre-school, and a community center. This mix of land uses would be compatible with the existing uses on the Project Site as well as existing uses adjacent to the Project Site and in the vicinity. This alternative would not physically disrupt or divide an established community or adversely affect the existing character of the vicinity. Therefore, the Retention of the Historic District Central Core Alternative would have less-than-significant project-level and cumulative impacts on land use, and no mitigation measures are required.

Aesthetics

Retention of the historic district's central core of the Parkmerced complex under this alternative would substantially retain the essential distinctive visual qualities of the Parkmerced visual/scenic resource (including its visual cohesiveness, formality, views down streets, and park-like setting) that characterize Parkmerced's existing visual setting, avoiding the significant impact on visual quality caused by the demolition of the visual/scenic resource that would occur under the Proposed Project, as identified in EIR Section V.B, Aesthetics.

Like the Proposed Project, visual impacts related to new construction (as opposed to demolition) under this alternative would be less than significant. They would be similar in character to those described for the Proposed Project, since dense new construction would be located at the eastern, southern, and western perimeters of the Project Site at the interface with surrounding areas. The impact of wind turbines on visual quality under the Proposed Project would not occur under this alternative.

Population and Housing

Under the Historic District Core Alternative, 2,567 of the existing 3,221 residential units would remain. An additional 3,000 new units would be constructed along the perimeter of the Project Site (a total of 5,567 units, 2,346 net new), increasing the existing on-site residential population to about 12,690 people in 2030. This represents approximately 7,600 fewer residents than under the Proposed Project. The increase in Parkmerced's residential population proposed under the Historic District Core Alternative would be less than the increased number under the Proposed Project. Like the Proposed Project, it would change the existing areawide population, although this change would not be beyond expected growth incorporated into local and regional planning efforts.

Under the Historic District Core Alternative, the existing leasing office and school would remain. There would some retail, commercial, and office uses. Under this alternative, some retail, commercial, and office uses, and a fitness facility would be constructed under this alternative. Though there is no specific maintenance building proposed under this alternative, employment of some maintenance staff would be likely. There would be fewer total proposed employees than identified for the Proposed Project, since there the existing school is smaller than the one Pre K-5 school proposed with the Proposed Project, and less retail, office, commercial space constructed. Like the Proposed Project, employment under this alternative would not create a substantial demand for housing in the neighborhood, San Francisco, or the region in excess of the housing provided as part of the Proposed Project or housing otherwise available in the Bay Area. The amount of housing provided by the Parkmerced Project would exceed demand generated by project-generated employees. Therefore, project-level and cumulative impacts to population and housing would be less than significant under the Retention of the Historic District Core Alternative, and no mitigation measures are required.

Cultural Resources

Historic Architectural Resources

Retention of the historic district core of the Parkmerced complex under this alternative would retain the essential portions, features and characteristics of the Parkmerced historical resource that justify its eligibility for inclusion within the CRHR as an historic district. This alternative would thereby avoid the significant impact caused by the elimination of this historical resource under the Proposed Project, as identified in EIR Section V.D.a, Cultural Resources (Historic Architectural Resources). Therefore, there would be no project-level or cumulative historic architectural resources impacts under this alternative.

Archaeological and Paleontological Resources

Project construction activities under this alternative could cause impacts on archaeological and paleontological resources that are generally similar in character to those described in Section V.D.b, Cultural Resources (Archaeological and Paleontological Resources) for the Proposed Project, except that this impact would be reduced in degree because this alternative would require substantially less ground disturbance than the Proposed Project because the historic district central core would be retained and no ground disturbance would occur in this area. For this reason, the analysis, conclusions, and mitigation presented in that EIR section are the same for this alternative. The Historic District Core Alternative would have less-than-significant project-level and cumulative impacts on archaeological and paleontological resources, and no additional mitigation measures are required.

Transportation and Circulation

Under the Historic District Core Alternative, there would be less overall development on the Project Site than under the Proposed Project. Traffic and circulation improvements under the Historic District Core Alternative would differ from the Proposed Project in the following ways:

- The Muni Metro M Ocean View line would not be rerouted through the Project Site and would remain on 19th Avenue.
- The northbound left-turn lane would not be provided at Crespi Drive.
- A fourth southbound through lane on 19th Avenue would not be constructed.

However, under the Historic District Core Alternative, many of the traffic and infrastructure improvements planned for the Proposed Project would be constructed. These include the following:

- Construction of a third northbound left-turn-only lane on 19th Avenue at Junipero Serra Boulevard.
- Conversion of a northbound left-through lane to through-only on Junipero Serra Boulevard at 19th Avenue.
- Realignment of and a new signalized left-turn lane constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard).
- Reconfiguration of the Chumasero Drive/Brotherhood Way intersection.
- Reconfiguration of the Brotherhood Way intersections with Lake Merced Boulevard and Chumasero Drive.
- Construction of additional access points along Lake Merced Boulevard.

A detailed discussion of the transportation analysis of the Historic District Core Alternative is provided in the *Transportation Study.* The conclusions from the *Transportation Study* are summarized here.

Travel Demand

The Historic District Core Alternative would generate fewer trips than the Proposed Project. The Proposed Project would generate a net increase of 82 transit trips and 1,621 vehicle trips in the AM peak hour and 494 transit trips and 3,101 vehicle trips in the PM peak hour compared to existing conditions. The Historic District Core Alternative would generate a net decrease of 172 transit trips and a net increase of 957 vehicle trips in the AM peak hour and a net decrease of 9 transit trips and a net increase of 1,618 vehicle trips in the PM peak hour compared to existing conditions. Additional discussion of the Historic District Core Alternative travel demand is included in the Transportation Study.

Construction Impacts

Construction activities associated with the Historic District Core Alternative would be substantially less than those described for the Proposed Project. Because the Historic District Core Alternative consists of much less overall development than the Proposed Project, it is likely that construction activities would be considerably less than the Proposed Project. Further, the Historic District Core Alternative would not involve disruptions to 19th Avenue associated with the realignment of the Muni light rail tracks. Because the levels of construction would be far less than the Proposed Project, and there would be no construction on 19th Avenue, construction-related traffic impacts would likely be less than significant.

Intersection Conditions

The Historic District Core Alternative would result in fewer project-level and cumulative impacts at study intersections compared to the Proposed Project, as described in Section V.E, Transportation and Circulation (Impacts), because it would generate less vehicle traffic.

Specifically, under existing plus Project conditions, the Historic District Core Alternative would have the same significant direct traffic impacts as the Proposed Project, except at the following intersections, which would have less-than-significant impacts:

- Junipero Serra Boulevard/Sloat Boulevard / St. Francis Boulevard / Portola Drive
- 19th Avenue/Sloat Boulevard
- 19th Avenue/Crespi Drive
- Sunset Boulevard/Lake Merced Boulevard

Under cumulative conditions, the Historic District Core Alternative would no longer contribute considerably to cumulative impacts at six intersections that were identified as significant cumulative impacts with the Proposed Project:

- Junipero Serra Boulevard/Sloat Boulevard / St. Francis Boulevard / Portola Drive
- 19th Avenue/Sloat Boulevard
- 19th Avenue/Holloway Avenue
- 19th Avenue/Crespi Drive
- John Daly Boulevard/Lake Merced Boulevard
- Lake Merced Boulevard/Gonzalez Drive

The Historic District Core Alternative would otherwise cause or contribute considerably to cumulative impacts at the same study intersections as the Proposed Project.

Implementation of the Historic District Core Alternative would result in fewer significant intersection impacts than the Proposed Project; however, the Historic District Core Alternative's impacts to some study intersections would remain significant and unavoidable.

Freeway Conditions

The Historic District Core Alternative would cause significant project-level and cumulative impacts to the same freeway mainline sections, weaving sections, and ramp junction conditions as the Proposed Project, although they would be somewhat less severe because the Historic District Core Alternative would generate less vehicle traffic. These project-level and cumulative impacts would be significant and unavoidable.

Transit Impacts

Impacts on transit capacity utilization associated with the Historic District Core Alternative would be substantially less than with the Proposed Project, because it would result in a net decrease in peak hour transit ridership compared to existing conditions. Although the Proposed Project would have a significant impact at the study area northeast screenline, the Historic District Core Alternative would ultimately decrease ridership on this screenline. The Historic District Core Alternative's impact to Study Area Screenlines, Downtown Screenlines, and Regional Screenlines would be less than significant under existing plus Project and cumulative conditions.

Similar to the Proposed Project, the Historic District Core Alternative would cause impacts on transit travel times due to traffic congestion. The Proposed Project would cause significant impacts on six transit lines in one or more peak hours. Development of the Historic District Core Alternative would result in significant impacts on only three transit lines, three fewer than the Proposed Project. None of the transit lines forecasted to experience significant impacts in the AM peak hour associated with the Proposed Project would experience significant impacts under Historic District Core Alternative. Additionally, the Proposed Project's impacts to the 17 Parkmerced, 28 19th Avenue/28L 19th Avenue Limited, and M Ocean View routes would no

longer occur if the Historic District Core Alternative were implemented. However, the Historic District Core Alternative would have significant impacts similar to those under the Proposed Project in the PM peak hour on the 18 46th Avenue, Sam Trans 122, and 29 Sunset bus lines.

The Historic District Core Alternative would have significant impacts on three transit routes, and those impacts would be significant and unavoidable.

Overall, the Historic District Core Alternative would not provide as direct a connection to the M Ocean View light rail line compared to conditions with the Proposed Project, because it would not be routed into the Project site. This may de-emphasize the overall transit-oriented feel of the Project site. Further, it would not offer the convenience to SFSU students offered by the Proposed Project who would continue to have to cross 19th Avenue to access the M Ocean View platform. However, although the Historic District Core Alternative would not offer as many transit improvements as the Proposed Project, it would still offer reasonably good transit accessibility, and the lack of these improvements would not cause additional significant impacts.

Bicycle Impacts

The Historic District Core Alternative bicycle trips would be accommodated within the proposed street and bicycle network, and similar to the Proposed Project, bicycle impacts would be less than significant, and no mitigation measures are required.

Pedestrian Impacts

The pedestrian network and improvements would not change materially between the Proposed Project and the Historic District Core Alternative. Generally, similar to the Proposed Project, the pedestrian environment would be improved compared to existing conditions. However, under the Historic District Core Alternative, the SFSU Muni Metro station would remain on 19th Avenue and would not be relocated to within the Project Site.

As described in Section V.E, Transportation and Circulation (Setting), the SFSU station already experiences substantial crowding during peak hours, particularly following the end of classes. However, the Historic District Core Alternative would result in net decreases in transit riders using the SFSU station and therefore would have a less-than-significant impact on pedestrian circulation. No mitigation measures are required.

Parking

The Historic District Core Alternative would have a different land use program than the Proposed Project. The proposed parking supply for this alternative has not been identified, and it is therefore possible that there would be a parking shortfall, similar to the Proposed Project.

However, parking shortfalls are not considered to be physical environmental impacts under CEQA.

The Historic District Core Alternative would have no impacts on other transportation conditions (loading, air traffic, and emergency access).

Noise

The Historic District Core Alternative would retain the existing Muni Metro network on the edge of the Project Site within the 19th Avenue median, which would reduce certain noise and vibration impacts associated with the Proposed Project. The impact related to light rail noise and vibration would not occur, and Mitigation Measure M-NO-5 would not be needed.

Unlike the Proposed Project, there would be no wind turbines or district energy system installed under the Historic District Core Alternative to contribute to stationary noise sources. Other noise and vibration impacts associated with the Historic District Core Alternative, including motor vehicle traffic noise increases, would be similar to those of the Proposed Project, with a somewhat reduced likelihood of nearby uses being adversely affected due to the reduced density, reduced traffic, and the reduced extent of construction activity, especially for demolition. Retaining the existing pre-school at its current location west of Juan Bautista Circle would not change the potential for this use and future residential uses to be located in a potentially incompatible noise environment. Mitigation Measure M-NO-6, identified for the Proposed Project, would be applicable. Therefore, project-level and cumulative noise impacts would be less than significant with mitigation, as with the Proposed Project.

Air Quality

The Historic District Core Alternative would involve a reduced level of development leading to reduced quantities of emissions during construction and operations compared to the Proposed Project. However, the emissions under this alternative would affect regional and localized air quality conditions and cause project-level and cumulative impacts substantially similar in character to those described for the Proposed Project. Like the Proposed Project, the construction activities and operation related to the Historic District Core Alternative would cause emissions exceeding the existing and proposed BAAQMD thresholds of significance, and emissions under this alternative would cause significant and unavoidable impacts to regional air quality and localized impacts related to particulate matter. Because the Historic District Core Alternative would not reroute the light rail system into the Project Site, the Proposed Project would provide a higher level of consistency with regional air quality plans than this alternative. However, since this alternative would include many traffic and infrastructure improvements planned for the Proposed Project, this alternative would not conflict with regional air quality management plans.

Greenhouse Gas Emissions

This alternative would involve a lower level of construction-related and motor vehicle related greenhouse gas (GHG) emissions compared to the Proposed Project. Incrementally lower levels of GHG emissions would also be associated with electricity use, waste generation, water use, and natural gas use, due to reduced level of development. The GHG emissions associated with the Historic District Core Alternative would be dominated by motor vehicle emissions, as they would be with the Proposed Project. As with the Proposed Project, this alternative would be consistent with local GHG reduction goals. The GHG emissions associated with this alternative would occur in conjunction with many traffic and infrastructure improvements planned for the Proposed Project, which would minimize motor vehicle emissions and ensure that the impacts to global climate change and the Climate Action Plan would be less than significant.

Wind

Under the Retention of the Historic District Central Core Alternative, proposed development along the western, southern, and eastern edges of the Project Site would be similar to the Proposed Project and would have similar wind project-level and cumulative wind impacts as the Proposed Project. As stated in Section V.I, Wind and Shadow, pp. V.I.9-V.I.10, two mitigation measures would be implemented to mitigate potentially significant wind impacts to less-than-significant levels for this alternative. Mitigation Measure M-WS-1a requires additional wind impact analysis for proposed buildings that exceed 100 feet in height. Mitigation Measure M-WS-1b requires additional wind impact analysis for proposed buildings that exceed 50 feet in height and are within 200 feet of any of the existing 13-story tower buildings on the Project Site. Under the Retention of the Historic District Central Core Alternative, the existing buildings in the inner core of the Project Site would remain as they are. Therefore, the project-level and cumulative wind impacts on this portion of the Project Site would be similar to or less than the wind impacts of the Proposed Project. As with the Proposed Project, during the phased construction of this alternative, there could be temporary wind impacts that are potentially significant and unavoidable, even with the implementation of Mitigation Measures M-WS-1a and M-WS-1b.

Shadow

Under the Retention of the Historic District Central Core Alternative, proposed development along the western, southern, and eastern edges of the Project Site would be similar to the Proposed Project and would have similar project-level and cumulative shadow impacts as those identified with the Proposed Project. Under the Retention of the Historic District Central Core Alternative, the existing buildings in the inner core of the Project Site would remain as they are because no new development is proposed there. As a result, the shadow impacts on existing on-site open spaces (interior courtyards, lawns, the Meadow, and the Commons) would be less than

the shadow impacts of the Proposed Project, which are less than significant. No mitigation measures are required.

Recreation

Under the Historic District Core Alternative, 2,567 of the existing 3,221 residential units would remain. An additional 3,000 new units would be constructed along the perimeter of the Project Site (a total of 5,567 units, 2,346 net new), increasing the existing on-site residential population to about 12,690 people in 2030. The increase in Parkmerced's residential population proposed under this alternative would be about 7,600 fewer units than the number with the Proposed Project. Although, like the Project, it would change the existing areawide population, this increase would not be beyond expected growth incorporated into local and regional planning efforts. About 74 acres of open space would be provided under this alternative (about 6 more acres than with the Proposed Project). Similar to the Proposed Project, there would be a system of neighborhood parks, playgrounds, and open spaces with public plazas, courtyards, greenways, and athletic fields, as well as walking and biking paths. In addition, the existing Commons and Meadow areas would remain under this alternative. The increase in population and employment and its concentration in one area would likely result in an increased demand for and use of existing neighborhood parks, recreational facilities, and open space, as well as increased demand for and use of the adjacent citywide, state, and federal recreation facilities. Like the Proposed Project, given the amount of proposed development of private recreational facilities and open space on the Project Site and the wide variety and quantity of nearby public open space and recreational opportunities (see pp. V.J.7-V.J.9), the anticipated on-site population under this alternative would not increase the use of the public facilities such that significant adverse effects on public parks or recreational facilities would occur. Therefore, the project-level and cumulative impacts to recreation would be less than significant, and no mitigation measures are required.

Utilities and Services Systems

Under the Historic District Core Alternative, there would be less development than with the Proposed Project. All water, wastewater, and solid waste impacts of this alternative would be less than those less-than-significant project-level and cumulative impacts identified with the Proposed Project. Therefore, the Historic District Core Alternative would have a less-than-significant impact on utilities and services systems.

Public Services

Police

Under the Historic District Core Alternative, the 2,567 existing units located around the inner core of the site and in the 11 existing tower buildings would remain, and approximately 3,000

new units would be constructed primarily around the western and southern portions of the site (for a total of 5,567 units (2,346 net new) on the site), increasing the existing on-site residential population from about 7,340 people to about 12,690 people (about 7,600 fewer residents than the Proposed Project). The 5,350-person increase in population could result in the need for a SFPD substation on the Project Site to adequately serve the site and growth in the vicinity, as would the Proposed Project. However, the exact location and timing of construction would ultimately need to be negotiated with the SFPD. With construction of a substation on the Project Site, project-level and cumulative impacts on police services would be less than significant, and no mitigation measures are required.

Fire

Under the Historic District Core Alternative, the 2,567 existing units located around the inner core of the site and in the 11 existing tower buildings would remain, and approximately 3,000 new units would be constructed primarily around the western and southern portions of the site (for a total of 5,567 units (2,346 net new) on the site), increasing the existing on-site residential population from about 7,340 people to about 12,690 people (about 7,600 fewer residents than the Proposed Project). The 5,350-person increase in population could result in the need for an SFFD substation and possibly a new fire station on the Parkmerced Site to adequately serve the site and growth in the vicinity, as would the Proposed Project. With construction of a substation and fire station on the Project Site under this alternative, project-level and cumulative impacts on fire services would be less than significant, and no mitigation measures are required.

Schools

Under the Historic District Core Alternative, 2,346 net new housing units would be added to the Project Site, increasing the number of school-aged residents by about 475 students (about 675 fewer students than with the Proposed Project). Under current policies, the SFUSD would collect developer fees from the Proposed Project to help finance expansion of existing schools, construction of new schools, and rental of temporary classroom facilities. As with the Proposed Project, the 475 new students anticipated under this alternative would not result in the need for additional school facilities, and there would be less-than-significant project-level and cumulative impacts on school facilities under the Historic District Core Alternative. No mitigation measures are required.

Biology

Under the Historic Core Alternative, existing buildings around the Commons area would remain and the buildings around the perimeter of the Project Site would be demolished. Additionally, much of the existing on-site vegetation would be removed to make way for new residential buildings. Existing trees and shrubs throughout the site provide nesting habitat for urban-adapted

bird species. Vegetation removal and/or building demolition during the breeding season could remove trees, shrubs, and/or buildings that support active nests. All native birds and their nests are protected by the federal Migratory Bird Treaty Act and California Fish and Game Code; however, with implementation of Mitigation MeasureM-BI-4, which calls for conducting breeding bird surveys in construction areas and for creating buffers around confirmed nesting sites, this potentially significant impact would be reduced to a less-than-significant level.

Under the Historic Core Alternative, tower buildings are planned in the southeast and northwest corners of the Project Site. Similar to conditions identified under the Proposed Project, construction of the new towers in this alternative could affect bird migration and local movement if birds are injured or killed by colliding with the towers. This potentially significant impact would be reduced to a less-than-significant level by implementation of Mitigation Measure M-BI-9, which calls for incorporating design features that make it easier for birds to identify buildings, and avoiding the use of clear or reflective glass.

Unlike with the Proposed Project, no wind turbines are proposed under the Historic District Core Alternative, nor would there be a hydrology plan that would discharge treated stormwater into Lake Merced. Therefore, biological impacts involving bird strikes, or riparian habitat or special status species would not occur and Mitigation Measures M-BI-1a, M-BI-1b, M-BI-1c, M-BI-2a, M-BI-2b, M-BI-2c, M-BI-3a, M-BI-3b, M-BI-7a, M-BI-7b, M-BI-8a, M-BI-8b, M-BI-8c, M-BI-8d, M-BI-8e, and M-BI-10 would not be applicable.

Hydrology and Water Quality

The Historic District Core would not include the system planned in the Proposed Project to capture stormwater runoff and direct it away from the combined collection and treatment system. Therefore, the alternative would not reduce the volume of stormwater entering the system from the Project Site, and unlike the Proposed Project would not reduce the average annual number of combined sewer overflows. The increase in wastewater volumes would be small in relation to the overall combined flows during rainy weather, and would not result in an increase in the average annual number of combined sewer overflows. Therefore, while the alternative would not reduce overflows, it would not result in a significant project-level and cumulative impacts and no mitigation measures are required.

Minerals and Energy Resources

Unlike the Proposed Project, there would be no sustainability plan proposed under the Historic District Core Alternative. Therefore, there would be no renewable energy sources, such as wind turbines and photovoltaic cells installed to offset any portion of energy demand. Except as otherwise required to meet the standards of the San Francisco Green Building Ordinance, energy efficiency measures exceeding Title 24 requirements would not be proposed for new construction.

These include using insulation that exceeds code requirements; installing windows with insulated glazing and low-conductivity window frames; using cogeneration, heat recovery ventilation, and heat pumps; and installing smart meters. Under this alternative, there would likely be an increase in site energy use compared to existing conditions. This would result in the use of greater amounts of fuel and energy than identified under the Proposed Project. Because new buildings would be required to comply with Title 24 standards and any additional standards in the San Francisco Green Building Ordinance, this alternative would not result in the use of excessive amounts of fuel and energy and would result in a less-than-significant impact. As with the Proposed Project, there are no designated mineral resources or recovery sites on the Project Site, and no impacts on mineral resources would occur.

Other Topics

For the topics of Geology and Soils, Hazards, and Agricultural Resources, project-level and cumulative impacts identified for the Proposed Project would be nearly identical to or less than those for the Historic District Core Alternative. There would be no identified significant impacts. Any mitigation measure and/or improvement measure identified in these topics would be applicable under this alternative.

D. PARTIAL HISTORIC DISTRICT ALTERNATIVE

DESCRIPTION

Under the Partial Historic District Alternative, development would be similar to the Proposed Project except that a portion of the northwest corner of the Project Site would remain unchanged. Under this alternative, all 11 towers and two blocks of garden apartments would remain, comprising a total of containing 1,849 residential units. (See Figure VII.4: Partial Historic District Alternative.) Under this alternative, the remainder of the buildings on the site would be demolished and redesigned to accommodate 6,689 new units (5,317 net new units) and a total of 8,538 units on site. Like the Proposed Project, a new neighborhood core containing 224,300 gsf of new neighborhood-serving retail and 80,000 gsf of new office space would be constructed within walking distance of the residences at Parkmerced. A new 37,800-gsf leasing office, a new 64,000-gsf community center, and a new 25,000-gsf school and day care facility, as well as about 70 acres of new open space uses, including athletic fields, walking and biking paths, and an approximately 2-acre organic farm, would also be built on the Project Site.

Under the Partial Historic District Alternative, traffic and transit improvements would be similar to those planned under the Proposed Project. These improvements include rerouting the Metro M Ocean View line from its current alignment along 19th Avenue, and providing modifications along 19th Avenue to accommodate the new route. Like the Proposed Project, the alignment under the Partial Historic District Alternative would leave 19th Avenue at Holloway Avenue,

SOURCE: SOM, Turnstone Consulting

PROJECT BOUNDARY
PROPOSED GROUND-FLOOR RETAIL
PROPOSED GROUND-FLOOR RETAIL/ OFFICE ABOVE
PROPOSED OFF-STREET SURFACE PARKING
PROPOSED LEASING OFFICE/ RESIDENTIAL ABOVE
PROPOSED MUNI M OCEANVIEW LIGHT RAIL LINE CONFIGURATION
EXISTING & PROPOSED RESIDENTIAL
PROPOSED FARM SERVICE BULDING
PROPOSED FITNESS CENTER
PROPOSED PRE-K-5 SCHOOL • DAY CARE FACILITY/ RESIDENTIAL ABOVE

FIGURE VII.4: PARTIAL HISTORIC DISTRICT ALTERNATIVE

continue southwest towards the intersection of Crespi and Gonzalez Drives, continue along the eastern edge of the neighborhood core towards the intersection of Font Boulevard and Gonzalez Drive. At that point, about half of the M Ocean View streetcars would turn east on Felix Avenue and exit Parkmerced to the south at the intersection of 19th Avenue and Junipero Serra Boulevard and continue to Balboa Park. The other half would terminate at a new station at the intersection of Font Boulevard and Chumasero Drive.

Other traffic and infrastructure improvements would include intersection realignment and a new signalized left turn into the site in the vicinity of Crespi Drive (accessed from northbound 19th Avenue); conversion of a shared lane on 19th Avenue at Junipero Serra into a third northbound left-turn lane; construction of a second dedicated northbound through lane on Junipero Serra at 19th Avenue; realignment of and a new signalized left-turn lane constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard); reconfiguration of the Chumasero Drive / Brotherhood Way intersection; reconfiguration of the Brotherhood Way intersections with Lake Merced Boulevard and Chumasero Drive; and construction of additional access points along Lake Merced Boulevard.

Similar to the Proposed Project, implementation of a sustainability plan would provide for a variety of new infrastructure improvements intended to reduce the alternative's per-unit use of electricity, natural gas, water, and the City's wastewater conveyance and treatment systems.[9] A combination of renewable energy sources, including wind turbines and photovoltaic cells, would be used to meet a portion of this alternative's energy demand. In addition, stormwater runoff from buildings and streets would be captured and filtered through a series of bioswales, ponds, and other natural filtration systems. The filtered stormwater would then either percolate into the groundwater that feeds the Westside groundwater basin and Lake Merced or be released directly into Lake Merced.

ENVIRONMENTAL ANALYSIS

Land Use

Under the Partial Historic District Alternative, the mix of land uses (residential, retail, office, and educational), would be identical to the mix of land uses under the Proposed Project. As with the Proposed Project, the Historic District Alternatie would conflict with the Planning Code and General Plan height and bulk controls. The proposed development around the periphery of the Project Site would require amendments to the Planning Code and the General Plan to change the Height and Bulk District Zoning Map, as well as approval of a Special Use District. This

[9] As with all new construction, this alternative would be required to comply with all applicable local laws related to sustainability and GHG emissions reduction, including the Green Building Ordinance, Construction and Demolition Debris Recovery Ordinance, and Universal Recycling and Composting Ordinance.

alternative would not physically disrupt or divide an established community or adversely affect the existing character of the vicinity. Therefore, the Partial Historic District Alternative would have less-than-significant project-level and cumulative impacts on land use, and no mitigation measures are required.

Aesthetics

Demolition under the Partial Historic District Alternative would cause a significant impact on visual quality that is substantially similar in character to that described for the Proposed Project in Section V.B, Aesthetics. This alternative calls for demolition of most of the Parkmerced visual/scenic resource. Although a portion of the visual/scenic resource would be retained as a representative sample of the visual character that would have once existed on the Project Site, the retained portion would not be sufficient to convey the distinctive visual qualities of the site (including its visual cohesiveness, formality, views down streets, park-like setting) that characterize Parkmerced's existing visual setting.

Like the Proposed Project, visual impacts related to new construction (as opposed to demolition) under this alternative would be less than significant. They would be substantially similar in character to those described for the Proposed Project, since dense new construction would be located throughout the Project Site, although lessened somewhat because new construction would not occur within a portion of the site.

Population

Under the Partial Historic District Alternative, 1,849 of the existing 3,221 residential units would remain in the northwest area of the Project Site. An additional 6,689 new units would be constructed on the remainder of the Site, similar in configuration to the Proposed Project. There would be a total of 8,538 units (5,317 net new units), increasing the existing on-site residential population from about 7,340 people to about 19,465 people in 2030. The increase in Parkmerced's residential population under the Partial Historic District Alternative would be only slightly less than that proposed with the Project. Like the Project, it would change the existing areawide population, although this change would not be beyond expected growth incorporated into local and regional planning efforts.

Under the Partial Historic District Alternative, the existing leasing office and school would be demolished and new retail, commercial, and office uses, school, and a fitness facility would be constructed. Employment would be roughly the same as that identified under the Proposed Project. Like the Proposed Project, employment under this alternative would not create a substantial demand for housing in the neighborhood, San Francisco, or the region in excess of the housing provided as part of the Proposed Project or housing otherwise available in the Bay Area. The amount of housing provided by the Parkmerced Project would continue to exceed demand

generated by project-generated employees. Therefore, project-level and cumulative impacts to population and housing would be less than significant under the Partial Historic District Alternative, and no mitigation measures are required.

Cultural Resources

Historic Architectural Resources

Demolition under this alternative would cause impacts that are substantially similar in character to those described for the Proposed Project in Section V.D.a, Cultural Resources (Historic Architectural Resources). Although a portion of the existing Parkmerced historic district resource would be retained as a representative sample of the historic and architectural significance of the original Parkmerced historic district resource, the retained portion would only partially mitigate the impact to the Parkmerced historic district historical resource. Retention of a portion of the historic district resource would not be sufficient to convey its historic and architectural significance and would not justify its eligibility for inclusion in the CRHR. The project-level and cumulative impacts of the Partial Historic District Alternative on historic architectural resources would be considered significant and unavoidable.

Archaeological and Paleontological Resources

Project construction activities under this alternative would cause impacts on archaeological and paleontological resources that are similar to those described in Section V.D.b, Cultural Resources (Archaeological and Paleontological Resources), for the Proposed Project, except that this impact would be reduced in degree because this alternative would require less ground disturbance than the Proposed Project because the northwest portion of the Project Site would be retained and no ground disturbance would occur in this area. The Partial Historic District Alternative would have less-than-significant project-level and cumulative impacts on archaeological and paleontological resources, with mitigation.

Transportation and Circulation

Under the Partial Historic District Alternative, development would be similar to the Proposed Project, except that a portion of the Project Site's northwestern corner would remain unchanged. Under the Partial Historic District Alternative, the same traffic and infrastructure improvements planned for the Proposed Project would be constructed.

A detailed discussion of the transportation analysis of the Partial Historic District Alternative is provided in the *Transportation Study.* The conclusions from the *Transportation Study* are summarized here.

Travel Demand

The Partial Historic District Alternative would generate slightly fewer person-trips than the Proposed Project, although it would generate slightly more vehicle trips. Generally, though, total travel demand would be similar to the Proposed Project. The Proposed Project would generate a net increase of 82 transit trips and 1,621 vehicle trips in the AM peak hour and 494 transit trips and 3,101 vehicle trips in the PM peak hour. The Partial Historic District Alternative would generate a net increase of 64 transit trips and 1,795 vehicle trips in the AM peak hour and a net increase of 462 transit trips and 3,230 vehicle trips in the PM peak hour. Additional discussion of the Partial Historic District Alternative travel demand is included in the *Transportation Study.*

Construction Impacts

Construction activities associated with the Partial Historic District Alternative would be similar to those with the Proposed Project. Localized construction-related traffic impacts would therefore remain significant and unavoidable.

Intersection Conditions

The Partial Historic District Alternative serves as a hybrid of the Proposed Project and Historic District Core Alternative. Though it is a slightly reduced land use set compared to the Proposed Project, due to the specific mix of uses, it would generate a similar number of external vehicle trips and transit trips. Intersections with significant project-level and cumulative impacts, or cumulatively considerable contributions to cumulative impacts, under the Partial Historic District Alternative would be similar to those with the Proposed Project. Therefore, these impacts would remain significant and unavoidable.

Freeway Conditions

With the Partial Historic District Alternative, the freeway mainline sections, weaving sections, and ramp junction conditions would be similar to the Proposed Project, with significant and unavoidable impacts.

Transit Impacts

With the Partial Historic District Alternative, the transit screenline capacity utilization and transit delay conditions would be similar to those with the Proposed Project, with significant and unavoidable impacts.

Bicycle Impacts

The Partial Historic District Alternative bicycle trips would be accommodated within the proposed street and bicycle network. Similar to the Proposed Project, bicycle impacts would be less than significant, and no mitigation measures are required.

Pedestrian Impacts

The pedestrian network and improvements would not change materially between the Proposed Project and the Partial Historic District Alternative. Generally, similar to the Proposed Project, the pedestrian environment would be improved compared to existing conditions. Under Partial Historic District Alternative conditions, the M Ocean View station would be relocated from the current station in the median of 19th Avenue to a location within the Project Site. Like the Proposed Project, impacts on pedestrian circulation associated with the Partial Historic District Alternative would be less than significant, and no mitigation measures are required.

Parking

The Partial Historic District Alternative would have a different land use program than the Proposed Project. The proposed parking supply for this alternative has not been identified, and it is therefore possible that there would be a parking shortfall, similar to the Proposed Project. However, parking shortfalls are not considered to be physical environmental effects under CEQA.

The Partial Historic District Alternative would have no impacts on other transportation conditions (loading, air traffic, and emergency access).

Noise

Noise impacts under the Partial Historic District Alternative would be similar to those of the Proposed Project. This alternative would cause noise and vibration impacts generally similar in character to those described for the Proposed Project, except that the construction-related impacts and traffic noise would be slightly reduced to a degree because there would be no new construction activity in the northwest portion of the Project Site. Noise impacts under the Partial Historic District Alternative would be due to project-related traffic, rerouting the existing light rail line into the Project Site, placing sensitive uses in potentially incompatible noise environments, and operating stationary noise sources (e.g., district energy system, wind turbines, etc.). The noise analysis, conclusions, and mitigation measures identified for the Proposed Project would be applicable to this alternative. Therefore project-level and cumulative noise impacts would be less than significant with mitigation, as with the Proposed Project.

Air Quality

The Partial Historic District Alternative would involve a reduced level of development and reduced quantities of emissions during construction and operations compared to the Proposed Project. However, the project-level and cumulative emissions under this alternative would affect regional and localized air quality conditions and cause impacts substantially similar in character to those described for the Proposed Project.

Like the Proposed Project, the construction activities and operation related to the Partial Historic District Alternative would cause emissions exceeding the existing and proposed BAAQMD thresholds of significance, and emissions under this alternative would cause significant and unavoidable impacts to regional air quality and localized impacts related to particulate matter. Since the Partial Historic District Alternative would reroute the light rail system into the Project Site, and include traffic and infrastructure improvements similar to the Proposed Project, this alternative would not conflict with regional air quality management plans.

Greenhouse Gas Emissions

This alternative would involve a lower level of construction-related and motor vehicle related greenhouse gas (GHG) emissions compared to the Proposed Project. Incrementally lower levels of GHG emissions would also be associated with electricity use, waste generation, water use, and natural gas use, due to reduced level of development. The GHG emissions associated with the Partial Historic District Core Alternative would be dominated by motor vehicle emissions, as they would be with the Proposed Project. As with the Proposed Project, this alternative would be consistent with local GHG reduction goals. The GHG emissions associated with this alternative would occur in conjunction with many traffic and infrastructure improvements planned for the Proposed Project, which would minimize motor vehicle emissions and ensure that the impacts to global climate change and the Climate Action Plan would be less than significant.

Wind

Under the Partial Historic District Alternative, proposed development in the southwest, southeast, and northeast corners of the Project Site would be similar to the Proposed Project and would have similar project-level and cumulative wind impacts as the Proposed Project. As stated in Section V.I., Wind and Shadow, pp. V.I 9-V.I.10, two mitigation measures would be implemented to mitigate potentially significant wind impacts to less-than-significant levels. Mitigation Measure M-WS-1a requires additional wind impact analysis for proposed buildings that exceed 100 feet in height. Mitigation Measure M-WS-1b requires additional wind impact analysis for proposed buildings that exceed 50 feet in height and are within 200 feet of any of the existing 13-story tower buildings on the Project Site. Under the Partial Historic District Alternative, the existing buildings in the northwest corner of the Project Site would remain as they currently are.

Therefore, the project-level and cumulative wind impacts on this portion of the Project Site would be similar to or less than the wind impacts of the Proposed Project. As with the Proposed Project, during the phased construction of this alternative, there could be temporary wind impacts that are potentially significant and unavoidable, even with the implementation of Mitigation Measures M-WS-1a and M-WS-1b.

Shadow

Under the Partial Historic District Alternative, proposed development in the southwest, southeast, and northeast corners of the Project Site would be similar to the Proposed Project and would have shadow impacts similar to those identified for the Proposed Project. The existing buildings in the northwest corner of the Project Site would remain as they currently are. Therefore, the project-level and cumulative shadow impacts on Lake Merced Park would be less than the shadow impacts of the Proposed Project, which are less than significant. No mitigation measures are required.

Recreation

Under the Partial Historic District Alternative, 1,849 of the existing 3,221 residential units would remain. An additional 6,689 new units would be constructed on the remainder of the Site, similar in configuration to the Proposed Project. There would be a total of 8,538 units (5,315 net new units), increasing the existing on-site residential population from about 7,340 people to about 19,465 people in 2030. The increase in Parkmerced's residential population proposed under this alternative would be about 825 fewer residents than the number with the Proposed Project (20,290 to 19,465 persons). Although, like the Project, it would change the existing areawide population, this increase would not be beyond expected growth incorporated into local and regional planning efforts. There would about the same amount of open space (around 68 acres) provided under this alternative. There would be a system of neighborhood parks, playgrounds, and open spaces with public plazas, courtyards, greenways, and athletic fields, as well as walking and biking paths as proposed with the Project. The increase in population and employment and its concentration in one area would likely result in an increased demand for and use of existing neighborhood parks, recreational facilities, and open space, as well as increased demand and use of the adjacent citywide, state, and federal recreation facilities. Like the Proposed Project, given the proposed development of private recreational facilities and open space on the Project Site and the wide variety and quantity of nearby public open space and recreational opportunities, the anticipated on-site population under this alternative would not increase the use of the public facilities such that a significant adverse effect on public parks or recreational facilities would occur. Therefore, the project-level and cumulative impacts on recreation would be less than significant, and no mitigation measures are required.

Public Services

Police

Under the Partial Historic District Alternative, 1,849 of the existing 3,221 residential units would remain. An additional 6,689 new units would be constructed on the remainder of the Site, similar in configuration to the Proposed Project (for a total of 8,538 [5,315 net new] units on the site). This would increase the existing on-site residential population from about 7,340 people to about 19,465 people (about 825 fewer residents than with the Proposed Project). However, as with the Proposed Project, the increase in population would likely result in the need for an SFPD substation on the Project Site in order to adequately serve the site and growth in the vicinity. The exact location and timing of construction would ultimately need to be negotiated with the SFPD. With construction of a substation on the Project Site under this alternative, project-level and cumulative impacts on police services would be less than significant, and no mitigation measures are required.

Fire

Under the Partial Historic District Alternative, 1,849 of the existing 3,221 residential units would remain. An additional 6,689 net new units would be constructed on the remainder of the Site, similar in configuration to the Proposed Project (for a total of 8,538 [5,315 net new] units on the site). This would increase the existing on-site residential population from about 7,340 people to about 19,465 people (about 825 fewer residents than with the Proposed Project). However, as with the Proposed Project, the increase in population would likely result in the need for an SFFD substation, and likely a new fire station, on the Project Site in order to adequately serve the site and growth in the vicinity. The exact location and timing of construction would ultimately need to be negotiated with the SFPD. With construction of a substation on the Project Site under this alternative, project-level and cumulative impacts on police services would be less than significant, and no mitigation measures are required.

Schools

Under the Partial Historic District Alternative, 5,315 net new housing units would be added to the Project Site, increasing the number of school-aged residents by about 1,080 students (about 70 fewer students than with the Proposed Project). Under current policies, the SFUSD would collect developer fees from the Proposed Project to help finance expansion of existing schools, construction of new schools, and rental of temporary classroom facilities. As with the Proposed Project, the 1,080 new students under this alternative would not result in the need for additional school facilities, and there would be less-than-significant project-level and cumulative impacts on schools. No mitigation measures are required.

Utilities and Services Systems and Hydrology

Under the Partial Historic District Alternative, development would be similar to the Proposed Project and all water, wastewater, stormwater / hydrology, and solid waste impacts identified with the Proposed Project would be similar.. Therefore, as with the Proposed Project, the alternative would have less-than-significant project-level and cumulative impacts on utilities and services systems and hydrology.

Biology

Under the Partial Historic District Alternative, existing buildings around the perimeter of the Project Site would be demolished. Additionally, much of the existing on-site vegetation would be removed to make way for new residential buildings. Existing trees and shrubs throughout the site provide nesting habitat for urban-adapted bird species. Vegetation removal and/or building demolition during the breeding season could remove trees, shrubs, and/or buildings that support active nests. All native birds and their nests are protected by the federal Migratory Bird Treaty Act and California Fish and Game Code; however, with implementation of Mitigation Measure M-BI-4, which calls for conducting breeding bird surveys in construction areas and for creating buffers around confirmed nesting sites, this potentially significant impact would be reduced to a less-than-significant level.

Under the Partial Historic District Alternative, tower buildings are planned in the southeast and northwest corners of the Project Site. Similar to conditions identified under the Proposed Project, construction of the new towers in this alternative could affect bird migration and local movement if birds are injured or killed by colliding with the towers. Loss of active nests would be a potentially significant impact that would be reduced to a less-than-significant level by implementation of Mitigation Measure M-BI-9, which calls for incorporating design features that make it easier for birds to identify buildings, and avoiding the use of clear or reflective glass.

As with the Proposed Project, wind turbines are proposed along the western Project Site boundary with this alternative. Wind turbines can present barriers, causing strikes, to local movement and seasonal migration corridors of birds and bats. Additionally, raptor nest sites have been observed on the Project Site, within 2,000 feet of the proposed wind turbine site, and in the vicinity of the Project Site. Raptors nesting close to wind turbines have a higher probability of being disturbed by construction and operations as well as colliding with the turbines. Mitigation Measures M-BI-8a, M-BI-8b, M-BI-8c, M-BI-8d, M-BI-8e, would be applicable under this alternative. However, as with the Proposed Project, without data from pre-permitting studies, it is not possible at this time to design a mitigation program that could be demonstrated to reduce impacts to less-than-significant levels. Therefore, this impact would be a significant and unavoidable.

Similar to the Proposed Project, a sustainability plan that includes the discharge of treated stormwater into Lake Merced is identified for the Partial Historic District Alternative. Therefore, Mitigation Measures M-BI-1a, M-BI-1b, M-BI-1c, M-BI-2a, M-BI-2b, M-BI-2c, M-BI-3a, M-BI-3b, M-BI-7a, M-BI-7b, and M-BI-10 would also apply to the Partial Historic District Alternative.

Minerals and Energy Resources

Similar to the Proposed Project, the Partial Historic District Alternative would implement a sustainability plan that would provide for a variety of new infrastructure improvements intended to reduce the alternative's per-unit use of electricity, natural gas, water, and the City's wastewater conveyance and treatment systems. Energy usage would be similar to or slightly less than that under the Proposed Project (with about 600 fewer residential units proposed with this alternative). A combination of renewable energy sources, including wind turbines and photovoltaic cells, would be used to meet a portion of this alternative's energy demand. In addition, there would be energy-efficiency measures proposed to improve energy efficiency on the site. Like the Proposed Project, implementation of strategies identified in the sustainability plan under this alternative would not result in the use of large amounts of fuel or energy and would result in a less-than-significant impact. As with the Proposed Project, there are no designated mineral resources or recovery sites on the Project Site, and no impact on mineral resources would occur.

Other Topics

For the topics of Geology and Soils, Hazards, and Agricultural Resources, project-level and cumulative impacts identified for the Proposed Project would be identical to those for the Partial Historic District Alternative, since the soil disturbance under the alternative would have a similar amount of excavation and ground disturbance. Therefore, there would be no identified significant project level or cumulative impacts for these topics. Any mitigation measure and/or improvement measure identified in these topics would be applicable under this alternative.

E. FULL PROJECT BUILDOUT WITH TRANSIT OPTIONS ALTERNATIVE

DESCRIPTION

Under the Full Project Buildout with Transit Options Alternative, the 152-acre site would be replanned and redesigned exactly as it would for the Proposed Project, except for the configuration of the Muni light rail line. The number and location of new and retained residential units would be the same as under the Proposed Project, as would the retail, office, commercial, school and community space facilities, and open space configuration. (See Figure VII.5: Full Project Buildout with Transit Options Alternative.)

SOURCE: SOM, Turnstone Consulting

PARKMERCED PROJECT

PROJECT BOUNDARY

PROPOSED GROUND FLOOR RETAIL

PROPOSEDGROUND-FLOOR RETAIL/ OFFICE ABOVE

PROPOSED OFF-STREET SURFACE PARKING

PROPOSED LEASING OFFICE/ RESIDENTIAL ABOVE

PROPOSED MUNI M OCEANVIEW LIGHT RAIL LINE CONFIGURATION

PROPOSED RESIDENTIAL

PROPOSED FARM SERVICE BULDING

PROPOSED FITNESS CENTER

PROPOSED PRE-K-5 SCHOOL • DAY CARE FACILITY/ RESIDENTIAL ABOVE

PROPOSED MUNI J CHURCH LIGHT RAIL LINE CONFIGURATION

FIGURE VII.5: FULL BUILDOUT WITH TRANSIT OPTIONS ALTERNATIVE

Under this alternative, the M Ocean View line would leave 19th Avenue at Holloway Avenue, turn south at Crespi Drive, and continue south through the neighborhood core, as it would with the Proposed Project; however, unlike with the Proposed Project, it would not re-enter 19th Avenue south of Felix Avenue. Instead, it would terminate at a new layover station constructed at the intersection of Font Boulevard and Chumasero Drive. Under the Full Project Buildout with Transit Options Alternative, the J Church line would be extended from its current terminus at Balboa Park, continue west along the existing M Ocean View alignment and terminate at a newly constructed Muni stop on 19th Avenue just south of Holloway Avenue.

Other traffic and infrastructure improvements would be similar to the Proposed Project and would include the following: construction of a fourth southbound mixed-flow travel lane on 19th Avenue; realignment of Crespi Drive (accessed from northbound 19th Avenue); conversion of a shared lane on 19th Avenue at Junipero Serra into a third northbound left-turn lane; construction of a second dedicated northbound through lane on Junipero Serra at 19th Avenue; realignment of and a new signalized left-turn lane constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard); reconfiguration of the Chumasero Drive / Brotherhood Way intersection; implementation of traffic calming features and a new bicycle lane along Brotherhood Way; reconfiguration of the Brotherhood Way intersections with Lake Merced Boulevard and Chumasero Drive; and construction of additional access points along Lake Merced Boulevard.

Like the Proposed Project, implementation of a sustainability plan would provide for a variety of new infrastructure improvements intended to reduce the per-unit use of electricity, natural gas, water, and the City's wastewater conveyance and treatment systems.[10] A combination of renewable energy sources, including wind turbines and photovoltaic cells, would be used to meet a portion of this alternative's energy demand. In addition, stormwater runoff from buildings and streets would be captured and filtered through a series of bioswales, ponds, and other natural filtration systems. The filtered stormwater would then either percolate into the groundwater that feeds the Westside groundwater basin and Lake Merced or be released directly into Lake Merced.

Full Project Buildout with Transit Options Alternative Variant. A design variant to be studied under the Full Project Buildout with Transit Options Alternative involves dedicating the fourth southbound through lane on 19th Avenue to transit and high-occupancy vehicle use only, rather than mixed-flow. There would be no change to this alternative's land use configuration or utilities under the variant. Unless otherwise stated, the impacts of the Variant and sub-variant pose the same impacts as presented for the analysis of the Alternative.

[10] As with all new construction, this alternative would be required to comply with all applicable local laws related to sustainability and GHG emissions reduction, including the Green Building Ordinance, Construction and Demolition Debris Recovery Ordinance, and Universal Recycling and Composting Ordinance.

ENVIRONMENTAL ANALYSIS

Land Use

Under the Full Project Buildout with Transit Options Alternative, the mix of land uses would be identical to the mix of land uses under the Proposed Project. As with the Proposed Project, the Full Project Buildout with Transit Options Alternative would conflict with the Planning Code and General Plan height and bulk controls. The proposed development would require amendments to the Planning Code and the General Plan to change the Height and Bulk District Zoning Map, as well as approval of a Special Use District. This alternative would also not physically disrupt or divide an established community or adversely affect the existing character of the vicinity. Therefore, the Full Project Buildout with Transit Options Alternative would have less-than-significant project-level and cumulative impacts on land use, and no mitigation measures are required.

Aesthetics

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project. The demolition of buildings and landscaping proposed under the alternative would eliminate a visual/scenic resource of the built environment. Demolition of the existing Parkmerced visual resource would cause a substantial adverse impact on a visual/scenic resource of the built environment and would be considered a significant impact under CEQA. This impact is considered unavoidable because no feasible mitigation is available that would preserve most of the existing visual character of the Project Site yet allow the Proposed Project to be substantially implemented. Construction of the Full Project Buildout with Transit Options Alternative could interrupt or alter some existing private views from existing buildings on the Project Site. The alteration or interruption of private residential views for some nearby residents would be an unavoidable consequence of the Proposed Project, but would not be considered a significant impact under CEQA.

Population and Housing

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line. Population, employment and housing projections and impacts identified with the Proposed Project would be the same under this alternative. Therefore, the Full Project Buildout with Transit Options Alternative would have less-than-significant project-level and cumulative impacts on population and housing, and mitigation measures are not required.

Cultural Resources

Historic Architectural Resources

Demolition under this alternative would cause impacts that are substantially similar in character to those described for the Proposed Project in Section V.D.a, Cultural Resources (Historic Architectural Resources). The existing architectural character of the Project Site would be completely transformed under this alternative, impairing the characteristics of the Parkmerced historical resource that convey its historic and architectural significance and that justify its eligibility for inclusion in the CRHR. No integrity of Design, Setting, Materials, Workmanship, Feeling, and Association would remain with implementation of the proposed demolition. This project-level and cumulative impacts would be significant and unavoidable.

Archaeological and Paleontological Resources

Project construction activities under this alternative would require disturbance of previously undisturbed earth underlying the Project Site that is substantially similar in location, character, and scope to that described for the proposed project in Section V.D.b, Cultural Resources (Archaeological and Paleontological Resources). The Full Buildout with Transit Options Alternative would have less-than-significant project-level and cumulative impacts on archaeological and paleontological resources, with mitigation.

Transportation and Circulation

The Full Buildout with Transit Options Alternative is similar to the Proposed Project, but the J Church line would extend to Holloway Avenue along the existing M Ocean View rail alignment and the M Ocean View would be rerouted into the Parkmerced Site, similar to the Proposed Project, but would terminate at the southeast corner of the Project site. Traffic and circulation improvements under the Full Buildout with Transit Options Alternative would differ from the Proposed Project in the following ways:

- No northbound left-turn would be provided at the 19th Avenue/Crespi Drive intersection
- Instead of constructing a fourth southbound travel lane on 19th Avenue from Holloway Avenue to Junipero Serra Boulevard, the fourth lane would travel from Holloway Avenue and become a forced right-turn lane at Crespi Drive. Three travel lanes and existing on-street parking south of Crespi Drive would be maintained similar to existing conditions.
- A terminal station would be constructed on the south side of the 19th Avenue/Holloway Avenue intersection for the extended J Church line. Passengers transferring from the J Church to the M Ocean View would have cross to the west side of 19th Avenue and Crespi Drive where the new SFSU transit station would be located.

The Full Buildout with Transit Options Alternative would otherwise have the same transportation improvements as those for the Proposed Project.

Similar to the transportation analysis of the Proposed Project, the transportation analysis of the Full Buildout with Transit Options Alternative was also conducted for conditions with the Project Variant, in which case the fourth southbound travel lane would be extended on 19th Avenue from Crespi Drive to Junipero Serra Boulevard. This additional travel lane would require removal of existing on-street parking along the corridor between Crespi Drive and Junipero Serra Boulevard. The entire length of the fourth travel lane, from Holloway Avenue to Junipero Serra Boulevard, would be operated as transit-only/high-occupancy vehicle/toll lane (HOT lane).

The transportation analyses of the Full Buildout with Transit Options Alternative and the Full Buildout with Transit Options Variant were each conducted for conditions with and without the sub-variant (i.e., right-turn access to the Project site from southbound 19th Avenue to Cambon Drive).

A detailed discussion of the transportation analysis of the Full Buildout with Transit Options Alternative, its variant, and its sub-variants, is provided in the *Transportation Study.* The conclusions from the *Transportation Study* are summarized here.

Travel Demand

The travel demand characteristics of the Full Buildout with Transit Options Alternative (either with or without the Variant and/or sub-variant) would be identical to those of the Proposed Project, as summarized in Table V.E.6, p. V.E.44.

Construction Impacts

Construction activities associated with the Full Buildout with Transit Options Alternative (either with or without the Variant and/or sub-variant) would be similar to those with the Proposed Project. Localized construction-related traffic impacts would therefore remain significant and unavoidable.

Intersection Conditions

The Full Buildout with Transit Options Alternative would have existing plus Project and cumulative effects at study intersections similar to those identified for the Proposed Project, as described in Section V.E, Transportation and Circulation (Impacts), with the following differences.

The significant Project-related impact at the 19th Avenue/Crespi Drive intersection would be reduced to less-than-significant levels under conditions with the Full Buildout with Transit Options Alternative, because the northbound left-turn lane would not be added at this intersection under this Alternative. The cumulative impact at this intersection would also be reduced to less-than-significant levels. However, implementing the Full Buildout with Transit Options

Alternative would create a new significant Project-related impact at the 19th Avenue/Junipero Serra Boulevard intersection during the weekend midday peak hour and a new cumulative impact at this intersection during the weekday PM peak hour. The feasibility of mitigation measures to reduce impacts at the 19th Avenue/Junipero Serra Boulevard intersection to less-than-significant levels is uncertain, and is described in greater detail in the *Transportation Study.*

Overall, implementing the Full Buildout with Transit Options Alternative would reduce one Project impact to less-than-significant levels but would create one new significant impact, such that the total number of intersections experiencing significant impacts would be the same as the Proposed Project under existing plus Project conditions. A similar situation would exist under cumulative conditions. The Full Buildout with Transit Options Alternative would reduce the project's contribution at one intersection from cumulatively considerable levels to less than significant levels, but would contribute cumulatively considerable volumes to one additional intersection. Consequently, the total number of intersections to which the Full Buildout with Transit Options Alternative would contribute cumulatively considerable increases would be the same as the Proposed Project. Impacts to intersection operations would remain significant and unavoidable.

Implementation of the Full Buildout with Transit Options Variant would result in the same significant impacts as the Full Buildout with Transit Options Alternative under existing plus Project conditions and one fewer significant cumulative impacts (the intersection of 19th Avenue/Junipero Serra Boulevard would no longer experience a significant cumulative impact). Regardless, implementation of the Full Buildout with Transit Options Variant would result in significant and unavoidable intersection impacts under existing plus project and cumulative conditions.

Implementation of the sub-variant, either in combination with the Full Buildout with Transit Options Alternative or the Full Buildout with Transit Options Variant, would result in the same number of intersection impacts as without implementation of the sub-variant.

Freeway Conditions

With the Full Buildout with Transit Options Alternative (either with or without the Variant and/or sub-variant), operations on the freeway mainline and weaving sections, and the ramp junction conditions would be similar to those described for the Proposed Project, with significant and unavoidable impacts.

Transit Impacts

Impacts to transit capacity utilization associated with the Full Buildout with Transit Options Alternative would be similar to the Proposed Project. The Full Buildout with Transit Options

Alternative would have a significant and unavoidable impact on the study area screenlines under existing plus Project and cumulative conditions. The Full Buildout with Transit Options Alternative's impact on Downtown Screenlines and Regional Screenlines would be less than significant under existing plus Project and cumulative conditions.

Similar to the Proposed Project, the Full Buildout with Transit Options Alternative would cause impacts on transit travel times due to traffic congestion. The Proposed Project would cause significant impacts on six transit lines in one or more peak hours. The Full Buildout with Transit Options Alternative would result in two fewer significant impacts than the Proposed Project.

- In the AM peak hour, the Full Buildout with Transit Options Alternative would result in the need for one additional transit vehicle for the 18 46th Avenue bus route and one additional vehicle for SamTrans route 122. (As noted before, the 18 46th Avenue route may be changed as part of the Transit Effectiveness Project, and could not be affected if it were no longer to traverse the Project area. If the 17 Parkmerced takes over part of the 18 46th Avenue route, the 17 Parkmerced route would be impacted.) The Full Buildout with Transit Options Alternative would also reduce congestion such that it would reduce the vehicle needs for the 17 Parkmerced by one vehicle.
- In the PM peak hour, the Full Buildout with Transit Options Alternative would result in the need for two additional transit vehicles for the 18 46th Avenue bus route and one additional transit vehicle each for the 17 Parkmerced, 29 Sunset, and Samtrans 122 bus routes.
- In contrast to the Proposed Project, the Full Buildout with Transit Options Alternative would not require an additional light rail vehicle for the M Ocean View line.

Although the Full Buildout with Transit Options Alternative would have significant impacts on two fewer transit routes than the Proposed Project, it would still cause significant impacts, and those impacts would be significant and unavoidable.

With implementation of the Full Buildout with Transit Options Variant, bus transit running times along the Parkmerced frontage would be improved compared to conditions with the Full Buildout with Transit Options Alternative. However, although implementation of the HOT lane along southbound 19th Avenue would slightly improve transit travel times, impacts on transit associated with the Full Buildout with Transit Options Variant would remain significant and unavoidable.

Implementation of the sub-variant may introduce a new point of conflict, such that private autos turning into the new access point from 19th Avenue may reduce the effectiveness of the HOT lane (or the fourth southbound travel lane). However, the effects would be small and the Full Buildout with Transit Options Alternative and the Full Buildout with Transit Options Variant would have the same significant impacts on transit regardless of implementation of the sub-variant.

Bicycle Impacts

The Full Buildout with Transit Options Alternative (either with or without the Variant and/or sub-variant) bicycle trips would be accommodated within the proposed street and bicycle network, and similar to the Proposed Project, bicycle impacts would be less than significant, and no mitigation measures are required.

Pedestrian Impacts

The pedestrian network and improvements (either with or without the Variant and/or sub-variant) would not change materially between the Proposed Project and the Full Buildout with Transit Options Alternative. Generally, the pedestrian environment would be improved compared to existing conditions. Under Full Buildout with Transit Options Alternative conditions, the M Ocean View station would be relocated from the current station in the median of 19th Avenue to be within the Project site. The J Church would extend north along 19th Avenue, terminating at a new station in the median of 19th Avenue, just south of the 19th Avenue/Holloway Intersection (south of the existing SFSU station).

Passengers wishing to transfer between the M Ocean View and the J Church light rail lines would need to cross the west side of 19th Avenue to make the connection. While this situation is not ideal, it is considered a less-than-significant impact. Other impacts on pedestrian circulation associated with the Full Buildout with Transit Options Alternative would be considered less than significant, and no mitigation measures are required.

Parking

The Full Buildout with Transit Options Alternative (either with or without the Variant and/or sub-variant) would have the same land use program and parking plans as the Proposed Project and therefore, would have the same parking effects as the Proposed Project. However, parking shortfalls are not considered to be physical environmental impacts under CEQA. .

The Full Buildout with Transit Options Alternative would have no impacts on other transportation conditions (loading, air traffic, and emergency access).

Noise

The Full Project Buildout with Transit Options Alternative would introduce a different alignment for the Muni Metro network within the Project Site, which would alter certain noise and vibration impacts associated with the Proposed Project. Other aspects of the development under the Full Project Buildout with Transit Options Alternative would be generally similar to those of the Proposed Project. Similar to the Proposed Project, project-level and cumulative noise impacts under the Full Project Buildout with Transit Options Alternative would be due to construction

activities, project-related traffic, rerouting the existing light rail line into the Project Site, placing sensitive uses in potentially incompatible noise environments, and operating stationary noise sources (e.g., district energy system, wind turbines, etc.). The locations impacted by light rail noise and vibration would change, which would change the location-specific details of Mitigation Measure M-NO-5, but the remainder of the noise analysis, conclusions, and mitigation measures identified for the Proposed Project would be applicable to this alternative.

Air Quality

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line. Air quality project-level and cumulative impacts identified with the Proposed Project would be the same under this alternative. Like the Proposed Project, the construction activities and operation related to the Full Project Buildout with Transit Options Alternative would cause emissions exceeding the existing and proposed BAAQMD thresholds of significance, and emissions under this alternative would cause significant and unavoidable impacts to regional air quality and localized impacts related to particulate matter. Since this alternative would include rerouting the light rail system into the Project Site, and other traffic and infrastructure improvements similar to the Proposed Project, this alternative would not conflict with regional air quality management plans.

Greenhouse Gas Emissions

This alternative would cause greenhouse gas (GHG) emissions in a similar manner and quantity as the Proposed Project. Implementing the Full Project Buildout with Transit Options Alternative would involve a different configuration of light rail services, but this would not change the conclusion made for the Proposed Project, that development would be consistent with local GHG reduction goals. This alternative would include the traffic and infrastructure improvements planned for the Proposed Project, which would minimize motor vehicle emissions and ensure that the impacts to global climate change and the Climate Action Plan would be less than significant.

Wind

Under the Full Project Buildout with Transit Options Alternative, the proposed development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line, which would not be proposed. The project-level and cumulative wind impacts under this alternative would be the same as the wind impacts of the Proposed Project. As stated in Section V.I., Wind and Shadow, pp. V.I.9-V.I.10, two mitigation measures would be implemented to mitigate potentially significant wind impacts to less-than-significant levels. Mitigation Measure M-WS-1a requires additional wind impact analysis for proposed buildings that exceed 100 feet in height. Mitigation Measure M-WS-1b requires additional wind impact

analysis for proposed buildings that exceed 50 feet in height and are within 200 feet of any of the existing 13-story tower buildings on the Project Site. As with the Proposed Project, during the phased construction of this alternative, there could be temporary wind impacts that are potentially significant and unavoidable, even with the implementation of Mitigation Measures M-WS-1a and M-WS-1b.

Shadow

Under the Full Project Buildout with Transit Options Alternative, the proposed development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line. The project-level and cumulative shadow impacts under this alternative would be the same as the shadow impacts of the Proposed Project, which would be less than significant. No mitigation measures are required.

Recreation

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line, which would not be proposed. Recreation and open space project-level and cumulative impacts identified with the Proposed Project would be the same under this alternative. Therefore, the Full Project Buildout with Transit Options Alternative would have a less-than-significant impact on recreation, and no mitigation measures are required.

Utilities and Services Systems and Hydrology

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line, which would not be proposed. All water, wastewater, stormwater / hydrology, and solid waste project-level and cumulative impacts identified with the Proposed Project would be the same under this alternative. Therefore, the Full Project Buildout with Transit Options Alternative would have a less-than-significant impact on utilities and services systems and hydrology, and no mitigation measures are required.

Public Services

Police

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line. Project-level and cumulative impacts on police services identified for the Proposed Project would be the same under this alternative. Therefore, the Full Project Buildout with Transit Options

Alternative would have a less-than-significant impact on police services, and no mitigation measures are required.

Fire

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line, which would not be proposed. Project-level and cumulative impacts on fire services identified for the Proposed Project would be the same under this alternative. Therefore, the Full Project Buildout with Transit Options Alternative would have a less-than-significant impact on fire services, and no mitigation measures are required.

Schools

Under the Full Project Buildout with Transit Options Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line, which would not be proposed. Project-level and cumulative impacts on schools identified for the Proposed Project would be the same under this alternative. Therefore, the Full Project Buildout with Transit Options Alternative would have a less-than-significant impact on schools, and no mitigation measures are required.

Biology

Under the Full Project Buildout with Transit Options Alternative, biological impacts would be identical to those identified under the Proposed Project. Mitigation Measures M-BI-1a, M-BI-1b, M-BI-1c, M-BI-2a, M-BI-2b, M-BI-2c, M-BI-3a, M-BI-3b, M-BI-4, M-BI-6b, M-BI-7a, M-BI-7b, M-BI-8a, M-BI-8b, M-BI-8c, M-BI-8d, M-BI-8e, M-BI-9, and M-BI-10 would also apply to this alternative.

Minerals and Energy Resources

Like with the Proposed Project, the Full Project Buildout with Transit Options Alternative would incorporate a sustainability plan along with energy-efficiency measures. Energy usages would be identical to those identified in the Proposed Project, and, like the Project, there would be no significant impact identified under this alternative. No mitigation measures are required. As with the Proposed Project, there are no designated mineral resources or recovery sites on the Project Site, and no impacts on mineral resources would occur.

Other Topics

For the topics of Geology and Soils, Hazards, and Agricultural Resources, project-level and cumulative impacts identified for the Proposed Project would be identical to those that would

occur under the Full Project Buildout with Transit Options Alternative. As identified above, impacts for the topics of Land Use, Aesthetics, Population and Housing, Cultural Resources, Wind and Shadow, Recreation, Biological Resources, Geology and Soils, Hydrology and Water Quality, Hazards and Hazardous Materials, and Mineral and Energy Resources would also be identical to those that would occur with the Proposed Project. There would be no identified significant impacts. Any mitigation measure and/or improvement measure identified in these topics would be applicable under this alternative.

F. NO MUNI REALIGNMENT ALTERNATIVE

DESCRIPTION

Under the No Muni Realignment Alternative, the 152-acre site would be replanned and redesigned as it would with the Proposed Project, except that the Muni light rail line would not be routed through the Project Site, and no new Muni stops would be constructed. (See Figure VII.6: No Muni Realignment Alternative.) Under this alternative, the M Ocean View line would continue to bypass the Project Site, and would remain on its existing alignment to its terminus at the Balboa Park Station. Traffic and circulation improvements under the No Muni Realignment Alternative would include realignment of Crespi Drive (accessed from northbound 19th Avenue); conversion of a shared lane on 19th Avenue at Junipero Serra into a third northbound left-turn lane; construction of a second dedicated northbound through lane on Junipero Serra at 19th Avenue; realignment of and a new signalized left-turn lane constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard); reconfiguration of the Chumasero Drive/Brotherhood Way intersection; implementation of traffic calming features and a new bicycle lane along Brotherhood Way; reconfiguration of the Brotherhood Way intersections with Lake Merced Boulevard and Chumasero Drive; and construction of additional access points along Lake Merced Boulevard.

As with the Proposed Project, implementation of a sustainability plan would provide for a variety of new infrastructure improvements intended to reduce the alternative's per-unit use of electricity, natural gas, water, and the City's wastewater conveyance and treatment systems.[11] A combination of renewable energy sources, including wind turbines and photovoltaic cells, would be used to meet a portion of this alternative's energy demand. In addition, stormwater runoff from buildings and streets would be captured and filtered through a series of bioswales, ponds, and other natural filtration systems. The filtered stormwater would then either percolate into the groundwater that feeds the Westside groundwater basin and Lake Merced or be released directly into Lake Merced.

[11] As with all new construction, this alternative would be required to comply with all applicable local laws related to sustainability and GHG emissions reduction, including the Green Building Ordinance, Construction and Demolition Debris Recovery Ordinance, and Universal Recycling and Composting Ordinance.

No Muni Realignment or 19th Avenue Transit Improvements Alternative Variant. A design variant to be studied under the No Muni Realignment Alternative is an analysis of the Proposed Project without Muni or any of the improvements identified along 19th Avenue. There would be minimal land use changes from the No Muni Realignment Alternative as a result of having no transit improvements implemented along 19th Avenue. Unless otherwise stated, the impacts of the Variant and sub-variant pose the same impacts as presented for the analysis of the Alternative.

ENVIRONMENTAL ANALYSIS

Land Use

Under the No Muni Realignment Alternative, the mix of land uses would be similar to the mix of land uses under the Proposed Project. This alternative would not physically disrupt or divide an established community or adversely affect the existing character of the vicinity. Therefore, as with the Proposed Project, the No Muni Realignment Alternative would have less-than-significant project-level and cumulative impacts on land use, and no mitigation measures are required.

Aesthetics

Under the No Muni Realignment Alternative, visual impacts would be identical to the Proposed Project. The demolition of buildings and landscaping proposed under the alternative would eliminate a visual/scenic resource of the built environment. Demolition of the existing Parkmerced visual resource would cause a substantial adverse impact on a visual/scenic resource of the built environment and would be considered a significant impact under CEQA. This impact is considered unavoidable because no feasible mitigation is available that would preserve most of the existing visual character of the Project Site yet allow the Proposed Project to be substantially implemented.

Population and Housing

Under the No Muni Realignment Alternative, the mix of residential and various land uses would be identical to the Proposed Project. Population, employment, and housing projections and impacts identified with the Proposed Project would be the same under this alternative. Therefore, the No Muni Realignment Alternative would have less-than-significant project-level and cumulative impacts on population and housing, and no mitigation measures are required.

SOURCE: SOM, Turnstone Consulting

PROJECT BOUNDARY
PROPOSED GROUND-FLOOR RETAIL
PROPOSED GROUND-FLOOR RETAIL/ OFFICE ABOVE
PROPOSED OFF-STREET SURFACE PARKING
PROPOSED LEASING OFFICE/ RESIDENTIAL ABOVE
EXISTING MUNI M OCEANVIEW LIGHT RAIL LINE CONFIGURATION
PROPOSED RESIDENTIAL
PROPOSED FARM SERVICE BULDING
PROPOSED FITNESS CENTER
PROPOSED PRE-K-5 SCHOOL • DAY CARE FACILITY/ RESIDENTIAL ABOVE

FIGURE VII.6: NO MUNI REALIGNMENT ALTERNATIVE

Cultural Resources

Historic Architectural Resources

Demolition under this alternative would cause impacts that are substantially similar in character to those described for the proposed project in Section V.D.a, Cultural Resources (Historic Architectural Resources). The existing architectural character of the Project Site would be completely transformed, impairing the characteristics of the Parkmerced historical resource that convey its historic and architectural significance and that justify its eligibility for inclusion in the CRHR. No integrity of Design, Setting, Materials, Workmanship, Feeling, and Association would remain with implementation of the proposed demolition, and the project-level and cumulative impacts would be considered significant and unavoidable.

Archaeological and Paleontological Resources

Development under this alternative would require disturbance of previously undisturbed earth underlying the Project Site that is substantially similar in location, character, and scope to that described for the proposed project in Section V.D.b, Cultural Resources (Archaeological and Paleontological Resources). The No Muni Realignment Alternative would have less-than-significant project-level and cumulative impacts on archaeological and paleontological resources, with mitigation.

Transportation and Circulation

The No Muni Realignment Alternative is similar to the Proposed Project, but the existing Muni Metro network would remain. Under this Alternative, the M Ocean View line would continue to operate on the edge of the Project Site within the 19th Avenue median, and would continue to terminate at the Balboa Park Station. Traffic and circulation improvements under the No Muni Realignment Alternative would differ from the Proposed Project in the following ways:

- No northbound left-turn would be provided at the 19th Avenue/Crespi Drive intersection. The intersection would operate similar to existing conditions.
- No fourth southbound travel lane would be constructed on 19th Avenue.
- The SFSU transit stop would remain in the median of 19th Avenue.

The No Muni Realignment Alternative would otherwise have the same transportation improvements as those identified for the Proposed Project.

Similar to the transportation analysis of the Proposed Project, the transportation analysis of the No Muni Realignment Alternative was also conducted for conditions with the Project Variant, in which case a fourth southbound travel lane would be constructed on 19th Avenue, between Holloway Avenue and Junipero Serra Boulevard. This additional travel lane would require

removal of existing on-street parking along the corridor because the M Ocean View line would continue to operate in the median. The travel lane would be operated as transit-only/high-occupancy vehicle/toll lane (HOT lane).

The transportation analyses of the No Muni Realignment Alternative and the No Muni Realignment Variant were each conducted for conditions with and without the sub-variant (i.e., right-turn access to the Project Site from southbound 19th Avenue to Cambon Drive).

A detailed discussion of the transportation analysis of the No Muni Realignment Alternative, its variant, and its sub-variants, is provided in the *Transportation Study.* The conclusions from the *Transportation Study* are summarized here.

Travel Demand

The travel demand characteristics of the No Muni Realignment Alternative (either with or without the Variant and/or sub-variant) would be identical to those of the Proposed Project, as summarized in Table V.E.6, p. V.E.44.

Construction Impacts

Construction activities associated with the No Muni Realignment Alternative (either with or without the Variant and/or sub-variant) would be similar to those with the Proposed Project, except that disruptions to 19th Avenue associated with re-aligning the Muni light rail tracks would be eliminated. Localized construction-related traffic impacts would therefore remain significant and unavoidable.

Intersection Conditions

The No Muni Realignment Alternative would have project and cumulative effects at study intersections similar to those of the Proposed Project, as described in Section V.E, Transportation and Circulation (Impacts), with the following differences.

The significant Project-related and cumulative impact at the 19th Avenue/Crespi Drive intersection would be reduced to less-than-significant levels under conditions with the No Muni Realignment Alternative, because the northbound left-turn lane would not be added at this intersection under this Alternative. However, implementing the No Muni Realignment Alternative would create a new significant Project-related impact at the 19th Avenue/Junipero Serra Boulevard intersection during the weekend midday peak hour and a new cumulative impact at this intersection during the weekday PM peak hour. The feasibility of mitigation measures to reduce impacts at the 19th Avenue/Junipero Serra Boulevard intersection to less-than-significant levels is uncertain, and is described in greater detail in the *Transportation Study.*

Overall, implementing the No Muni Realignment Alternative would reduce one Project impact to less-than-significant levels but would create one new significant impact, such that the total number of intersections experiencing significant impacts would be the same as the Proposed Project under existing plus Project conditions. Under cumulative conditions, a similar situation would occur, as the No Muni Realignment Alternative would have one additional significant impact compared to the cumulative conditions with the Proposed Project, but the No Muni Realignment Alternative would also reduce the impact at 19th Avenue/Crespi Drive to less-than-significant levels. Overall, impacts to intersection operations would remain significant and unavoidable.

Implementation of the No Muni Realignment Variant would result in the same significant impacts as the No Muni Realignment Alternative under existing plus Project conditions and one fewer significant cumulative impact (the intersection of 19th Avenue/Junipero Serra Boulevard would no longer experience a significant cumulative impact). Regardless, implementation of the No Muni Realignment Variant would result in significant and unavoidable intersection impacts under existing plus Project and cumulative conditions.

Implementation of the sub-variant, either in combination with the No Muni Realignment Alternative or the No Muni Realignment Variant, would result in the same number of intersection impacts as without implementation of the sub-variant.

Freeway Conditions

With the No Muni Realignment Alternative (either with or without the Variant and/or sub-variant), operations on the freeway mainline sections and weaving sections, and the ramp junction conditions would be similar to those described for the Proposed Project, with significant and unavoidable impacts.

Transit Impacts

Impacts on transit capacity utilization associated with the No Muni Realignment Alternative would be similar to the Proposed Project. The No Muni Realignment Alternative would have a significant and unavoidable impact on the study area screenlines under existing plus Project and cumulative conditions. The No Muni Realignment Alternative's impact on Downtown Screenlines and Regional Screenlines would be less than significant under existing plus Project and cumulative conditions, for the Proposed Project.

Similar to the Proposed Project, the No Muni Realignment Alternative would cause impacts on transit travel times due to traffic congestion. The most substantial changes to the transit system, when comparing the No Muni Realignment Alternative to the Proposed Project, are the M Ocean View station configurations. Under the No Muni Alternative, the M Ocean View line would

consist of the current station locations along the SFSU and Parkmerced frontages: the SFSU station at the 19th Avenue/Holloway Avenue intersection and the station at the 19th Avenue/Junipero Serra Boulevard intersection. This is compared to the Proposed Project, which would bring the SFSU station into the Parkmerced site and add two more stations before the 19th Avenue/Junipero Serra Boulevard station.

The Proposed Project would cause significant impacts on six transit lines in one or more peak hours. The No Muni Realignment Alternative would result in two fewer significant impacts than the Proposed Project. Proposed Project impacts on the M Ocean View and 28 19th Avenue/28L 19th Avenue Limited would be eliminated.

- In the AM peak hour, the No Muni Realignment Alternative would result in the need for one additional transit vehicle for the 18 46th Avenue bus line and one for SamTrans 122 bus route. (As noted before, the 18 46th Avenue route may be changed as part of the TEP, and could not be affected if it were no longer to traverse the Project area. If the 17 Parkmerced takes over part of the 18 46th Avenue route, the 17 Parkmerced route would be impacted.) The No Muni Realignment Alternative would not result in the need for an additional vehicle on the M Ocean View light rail line.
- In the PM peak hour, the No Muni Realignment Alternative would result in the need for two additional transit vehicles for the 18 46th Avenue bus line and one additional transit vehicle each for the 17 Parkmerced, 29 Sunset, and Samtrans 122 routes. The No Realignment Muni Alternative would not result in the need for additional vehicles on the M Ocean View light rail line or the 28 19th Avenue/28L 19th Avenue Limited bus line.

Although the No Muni Realignment Alternative would have significant impacts on two fewer transit routes than the Proposed Project, it would still cause significant impacts, and those impacts would be significant and unavoidable.

With implementation of the No Muni Realignment Variant, bus transit running times along the Parkmerced frontage would be improved compared to conditions with the No Muni Realignment Alternative. However, although implementation of the HOT lane along southbound 19th Avenue would slightly improve transit travel times, impacts on transit associated with the No Muni Realignment Variant would remain significant and unavoidable.

Implementation of the sub-variant may introduce a new point of conflict, such that private autos turning into the new access point from 19th Avenue may reduce the effectiveness of the HOT lane (or the fourth southbound travel lane). However, the effects would be small and the No Muni Realignment Alternative and the No Muni Realignment Variant would have the same significant impacts on transit regardless of implementation of the sub-variant.

Overall, the No Muni Realignment Alternative would not provide as direct a connection the M Ocean View light rail line compared to conditions with the Proposed Project, because it would not be routed into the Project site. This may de-emphasize the overall transit-oriented feel of the

Project site. Further, it would not offer the convenience to SFSU students offered by the Proposed Project who would continue to have to cross 19th Avenue to access the M Ocean View platform. However, although the No Muni Realignment Alternative may not offer as many transit improvements as the Proposed Project, it would still offer reasonably good transit accessibility, and the lack of these improvements would not cause additional significant impacts.

Bicycle Impacts

The No Muni Realignment Alternative (either with or without the Variant and/or sub-variant) bicycle trips would be accommodated within the proposed street and bicycle network, and similar to the Proposed Project, bicycle impacts would be less than significant, and no mitigation measures are required.

Pedestrian Impacts

The pedestrian network and improvements would not change materially between the Proposed Project and the No Muni Realignment Alternative (either with or without the Variant and/or sub-variant). Generally, similar to the Proposed Project, the pedestrian environment would be improved compared to existing conditions. However, under the No Muni Realignment Alternative, the SFSU light rail station would remain on 19th Avenue and would not be relocated to within the Project site.

As described in Section V.E, Transportation and Circulation (Setting), the SFSU station already experiences substantial crowding during peak hours, particularly following the end of classes. Both the Proposed Project and the No Muni Realignment Alternative would add passengers to the SFSU station; however, under the Proposed Project, the SFSU station would be reconstructed and relocated within the Project site, with a large "transit plaza" area, which would accommodate existing and future pedestrian volumes. Under the No Muni Realignment Alternative, this plaza would not be constructed, and the existing SFSU station would be required to accommodate existing congestion, plus pedestrians associated with the Project alternative. Table VII.1 illustrates the pedestrian crowding LOS at the transit platform, consistent with the methodology described in the "Impact Evaluation," portion of Section V.E, Transportation and Circulation.

Based on the assumption of a relatively uniform arrival of passengers, levels of service at the 19th Avenue/Holloway Avenue platform are expected to operate at acceptable LOS D, or near the LOS C/D threshold, in the AM and PM peak hours. However, due to unique flows near this station associated with class schedules at SFSU, there are certain times during the AM and PM peak hours when overcrowding is more severe than reported above and the Proposed Project's contribution would be substantial, which would be a significant impact of the No Muni Realignment Alternative. To accommodate anticipated pedestrian volumes, the platform could be widened or the station platform (and tracks) could be relocated to the west side of 19th Avenue,

Table VII.1: Pedestrian Crowding at 19th/Holloway LRV Platform – No Muni Realignment Alternative Conditions

Scenario	Volumes				Space			
	AM		PM		AM		PM	
	Peak Hour Ridership[1]	Peak Pedestrian Use[2]	Peak Hour Ridership	Peak Pedestrian Use	Space (ft^2/p)[3]	LOS	Space (ft^2/p)	LOS
Existing	439	110	646	162	9	C	6	C/D
Existing Plus No Muni Realignment Alternative	608	152	970	243	6	C/D	4	D

Notes:

1. The total amount of people using the platform during the peak hour, including passengers of both north and southbound trains.
2. Peak hour volumes divided by the number of trains per hour (assumed to be 6 trains) multiplied by a factor of 1.5 to account for pedestrian crowding due to delayed trains or rushes (such as classes exiting at SFSU).
3. Space calculated using the following measurements to calculate the area of the train platform:
   - Width = 7 feet to account for warning strips at edge of the platform and the unusable pedestrian space in the center
   - Length = 140, 75% of the total platform length to account for crowding at one end of the platform where the train boards

Source: Fehr & Peers, May 2010

adjacent to the SFSU campus and the roadway could be shifted to the east. However, this would require substantially more analysis, coordination, and public outreach, and is not likely feasible within the context of the Proposed Project. Thus, the no Muni Realignment Alternative-related impacts on pedestrian crowding at this Muni platform would be significant and unavoidable.

The No Muni Realignment Alternative (either with or without the Variant and/or sub-variant) would have the same land use program and on-site parking plans as the Proposal Project. Implementation of the Variant, construction of a fourth southbound travel lane to be operated as a HOT Lane, would require removal of some on-street parking along 19th Avenue, although this would be small compared to the overall parking supply provided within the project site. Overall, the No Muni Realignment Alternative would have the same parking effects as the Proposed Project and implementation of the Variant would result in similar parking conditions, although with a slightly reduced supply. However, parking shortfalls are not considered to be physical environmental impacts under CEQA and no mitigation measures are required.

The No Muni Realignment Alternative would have no impacts on other transportation conditions (loading, air traffic, and emergency access).

Noise

The No Muni Realignment Alternative would retain the existing Muni Metro network on the edge of the Project Site within the 19th Avenue median, which would reduce noise and vibration impacts associated with the Proposed Project. Other aspects of the No Muni Realignment Alternative would be generally similar to or the same as those of the Proposed Project, and noise project-level and cumulative impacts would be due to construction activities, project-related traffic, placing sensitive uses in potentially incompatible noise environments, and operating stationary noise sources (e.g., district energy system, wind turbines, etc.), as with the Proposed Project. Under this Alternative, the M Ocean View line would continue to operate on the edge of the Project Site within the 19th Avenue median, which would avoid the potentially significant impact of transit vehicle noise and vibration within the Project Site. Noise and vibration impacts related to light rail vehicles operating within the Project Site would not occur, and Mitigation Measure M-NO-5 would not be applicable.

Air Quality

The No Muni Realignment Alternative is similar to the Proposed Project, but the existing Muni Metro network would remain within the 19th Avenue median. The project-level and cumulative emissions under this alternative would affect regional and localized air quality conditions and cause impacts substantially similar in character to those described for the Proposed Project. Like the Proposed Project, the construction activities and operation related to the No Muni Realignment Alternative would cause emissions exceeding the existing and proposed BAAQMD thresholds of significance, and emissions under this alternative would cause significant and unavoidable impacts to regional air quality and localized impacts related to particulate matter. Because the No Muni Realignment Alternative would not reroute the light rail system into the Project Site, the Proposed Project would provide a higher level of consistency with regional air quality plans than this alternative. However, since this alternative would include many traffic and infrastructure improvements planned for the Proposed Project, this alternative would not conflict with regional air quality management plans.

Greenhouse Gas Emissions

This alternative would cause greenhouse gas (GHG) emissions in a similar manner and quantity as the Proposed Project, except the light rail system would remain unchanged. This would not change the conclusion made for the Proposed Project, that development would be consistent with local GHG reduction goals. This alternative would include other traffic and infrastructure improvements planned for the Proposed Project, which would minimize motor vehicle emissions

and ensure that the impacts to global climate change and the Climate Action Plan would be less than significant.

Wind

Under the No Muni Realignment Alternative, the proposed development would be identical to the Proposed Project, except that the Muni light rail line would not be routed through the Project Site, and no new Muni stops would be constructed. The project-level and cumulative wind impacts under this alternative would be the same as the wind impacts of the Proposed Project. Implementation of Mitigation Measures M-WS-1a, which requires additional wind impact analysis for proposed buildings that exceed 100 feet in height, and M-WS-1b, which requires additional wind impact analysis for proposed buildings that exceed 50 feet in height and are within 200 feet of any of the existing 13-story tower buildings on the Project Site, would be applicable under this alternative. As with the Proposed Project, there would be no significant wind impacts at full buildout. However, as with the Proposed Project, during the phased construction of this alternative, there could be temporary wind impacts that are potentially significant and unavoidable, even with the implementation of Mitigation Measures M-WS-1a and M-WS-1b.

Shadow

Under the No Muni Realignment Alternative, the proposed development would be identical to the Proposed Project, except that the Muni light rail line would not be routed through the Project Site as under the proposed project, and no new Muni stops would be constructed. The project-level and cumulative shadow impacts under this alternative would be the same as the shadow impacts of the Proposed Project. As with the Proposed Project, there would be no significant shadow impacts, and mitigation measures are not required.

Recreation

Under the No Muni Realignment Alternative, development would be identical to the Proposed Project, except that the Muni light rail line would not be routed through the Project Site as under the proposed project. Recreation and open space project-level and cumulative impacts identified with the Proposed Project would be the same under this alternative. Therefore, the No Muni Realignment Alternative would have a less-than-significant impact on recreation, and no mitigation measures are required.

Utilities and Services Systems and Hydrology

Under the No Muni Realignment Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line. All water, wastewater,

stormwater / hydrology, and solid waste project-level and cumulative impacts identified for the Proposed Project would be the same under this alternative. Therefore, the No Muni Realignment Alternative would have a less-than-significant impact on utilities and services systems and hydrology, and no mitigation measures are required.

Public Services

Police

Under the No Muni Realignment Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line as under the proposed project. Project-level and cumulative impacts on police services identified for the Proposed Project would be the same under this alternative, and a police substation would be provided. Therefore, the No Muni Realignment Alternative would have a less-than-significant impact on police services, and no mitigation measures are required.

Fire

Under the No Muni Realignment Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line as under the proposed project. Project-level and cumulative impacts on fire services identified for the Proposed Project would be the same under this alternative, and a fire substation, and likely a fire station, would be provided. Therefore, the No Muni Realignment Alternative would have a less-than-significant impact on police services, and no mitigation measures are required.

Schools

Under the No Muni Realignment Alternative, development would be identical to the Proposed Project with the exception of the configuration of the Muni light rail line as under the proposed project. Project-level and cumulative impacts on schools identified for the Proposed Project would be the same under this alternative. Therefore, the No Muni Realignment Alternative would have a less-than-significant impact on schools, and no mitigation measures are required.

Biology

Under the No Muni Realignment Alternative, biological impacts would be identical to those identified under the Proposed Project. Mitigation Measures M-BI-1a, M-BI-1b, M-BI-1c, M-BI-2a, M-BI-2b, M-BI-2c, M-BI-3a, M-BI-3b, M-BI-4, M-BI-6b, M-BI-7a, M-BI-7b, M-BI-8a, M-BI-8b, M-BI-8c, M-BI-8d, M-BI-8e, M-BI-9, and M-BI-10 would also apply to this alternative.

Minerals and Energy Resources

Like with the Proposed Project, the No Muni Realignment Alternative would incorporate a sustainability plan along with energy-efficiency measures. Energy usages would be identical to those identified in the Proposed Project, and like the project there would be a less-than-significant impact under this alternative. No mitigation measures are required. As with the Proposed Project, there are no designated mineral resources or recovery sites on the Project Site, and no impacts to mineral resources would occur.

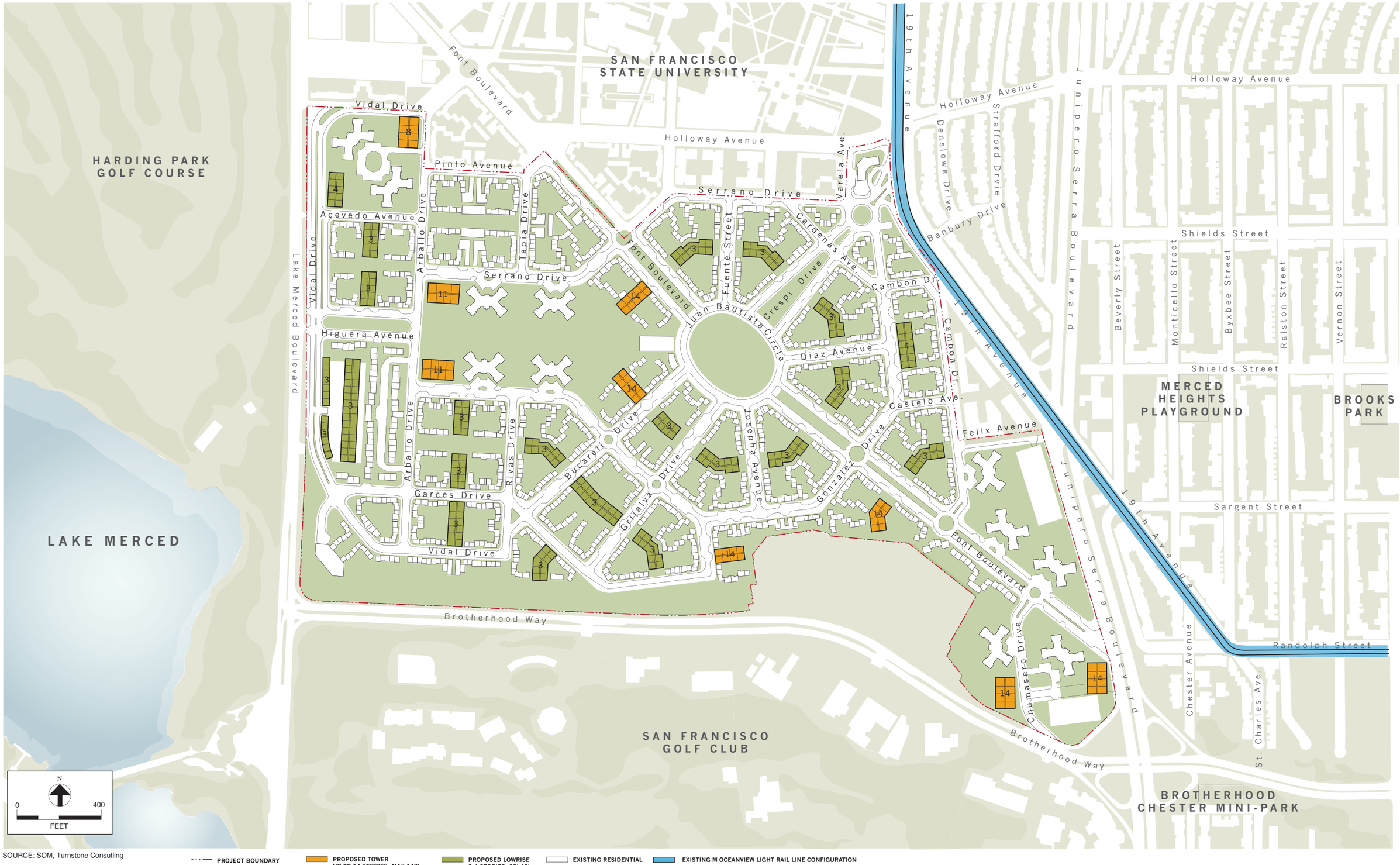
Other Topics

For the topics of Geology and Soils, Hazards, and Agricultural Resources, impacts identified with the Proposed Project would be identical to those that could occur under the No Muni Realignment Alternative. There would be no significant impacts. Any mitigation measure and/or improvement measure identified in these topics would applicable under this alternative.

G. DETAILS OF ALTERNATIVES CONSIDERED AND REJECTED

This section discusses two historic district preservation alternatives that were considered by the Project Sponsor, but are not analyzed further in this chapter because they did not meet project objectives, would not reduce project impacts, or would result in greater impacts than the Proposed Project. These considered and rejected alternatives are the Infill Development within the Historic District Alternative, and the West Side – Partial Historic District Alternative.

Infill Development within the Historic District: An infill development within the historic district would retain the majority of the existing buildings and landscape features at Parkmerced, and include new construction of a series of 3- to 14-story infill buildings on the sites of the existing carports and adjacent to the existing towers. (See Figure VII.7: Infill Development Within The Historic District Alternative.) In total, the new infill buildings would consist of 20 three-story buildings; 2 four-story buildings; 1 eight-story building; 2 eleven-story buildings; and 6 fourteen-story towers. Under this scenario, all of the existing 3,221 residential units would remain, and about 1,400 new units would be constructed (a total of 4,621 residential units on site). There would be no transit or infrastructure improvements made under this scenario, nor would there be any combination of renewable energy sources, such as wind turbines and photovoltaic cells, to offset any portion of energy demand. As under existing conditions, stormwater runoff from buildings and streets would flow into the combined sewer and stormwater lines that lead into the Oceanside Water Pollution Control Plant; therefore, the amount and frequency of combined sewer overflows would be essentially the same as that under existing conditions.



SOURCE: SOM, Turnstone Consutling

PROJECT BOUNDARY

PROPOSED TOWER UP TO 14 STORIES: MAX 140'

PROPOSED LOWRISE 3-4 STORIES: 35'-45'

EXISTING RESIDENTIAL

EXISTING M OCEANVIEW LIGHT RAIL LINE CONFIGURATION

PARKMERCED PROJECT

FIGURE VII.7: INFILL DEVELOPMENT WITHIN THE HISTORIC DISTRICT ALTERNATIVE

This potential EIR alternative was considered but not selected for analysis in this EIR because it would not achieve most of the Project Sponsor's objectives including those related to maximizing the opportunity to create high-density housing near a commercial core, transportation and infrastructure improvements, and sustainability. Additionally, although this potential EIR alternative would reduce impacts on the Parkmerced historic district resource by retaining most of its existing physical features, this potential EIR alternative would not retain this resource's essential integrity as it would require demolition of the carports within the garden apartment courtyards and construction of new residential structures within the courtyards.[12] As such, this potential alternative would result in a significant adverse impact on the Parkmerced historic district resource.

West Side - Partial Historic District. Preservation of a partial historic district (west side) would retain about half of the garden courtyard apartment block surrounding Juan Bautista Circle, as well as the blocks surrounding the Meadow and along a portion of Arballo Drive. (See Figure VII.8: West-Side Partial Historic District Alternative.) In addition, all eleven of the tower buildings, the Administration Building, and some of the major landscape features, including the landscaping and views along Font Boulevard, would be retained. In total, 2,365 existing units would be retained. In the remaining portion of the 152-acre site, about 4,100 new residential units would be constructed (a total of 6,465 units on site), about 120,000 gsf of retail space, 47,500 gsf of office space, a new 64,000-gsf community center, a 37,800-gsf leasing office, a new 25,000-gsf school, as well as new open space uses, including athletic playing fields.

Under this scenario, transit and transportation improvements would be similar to the Proposed Project. These include rerouting of the Metro M Ocean View line from its current alignment along 19th Avenue, and providing modifications along 19th Avenue to accommodate the new route. Like in the Proposed Project, the alignment would leave 19th Avenue at Holloway Avenue, continue southwest towards the intersection of Crespi and Gonzalez Drives, continue along the eastern edge of the neighborhood core towards the intersection of Font Boulevard and Gonzalez Drive. At that point, about half of the M Ocean View streetcars would turn east on Felix Avenue and exit Parkmerced to the south at the intersection of 19th Avenue and Junipero Serra Boulevard and continue to Balboa Park. The other half would terminate at a new station at the intersection of Font Boulevard and Chumasero Drive.

Other traffic and infrastructure improvements would include realignment of and a new signalized left-turn lane into the site in the vicinity of Crespi Drive (accessed from northbound 19th Avenue); conversion of a shared lane on 19th Avenue at Junipero Serra into a third northbound left-turn lane; construction of a second dedicated northbound through lane on Junipero Serra at

[12] Page & Turnbull, Inc., *Historic Resources Alternatives Study*, November 13, 2009, pp. 16-18. This document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.

19th Avenue; realignment of and a new signalized left turn constructed at Chumasero Drive (accessed from northbound Junipero Serra Boulevard); reconfiguration of the Chumasero Drive/Brotherhood Way intersection; reconfiguration of the Brotherhood Way intersections with Lake Merced Boulevard and Chumasero Drive; and construction of additional access points along Lake Merced Boulevard.

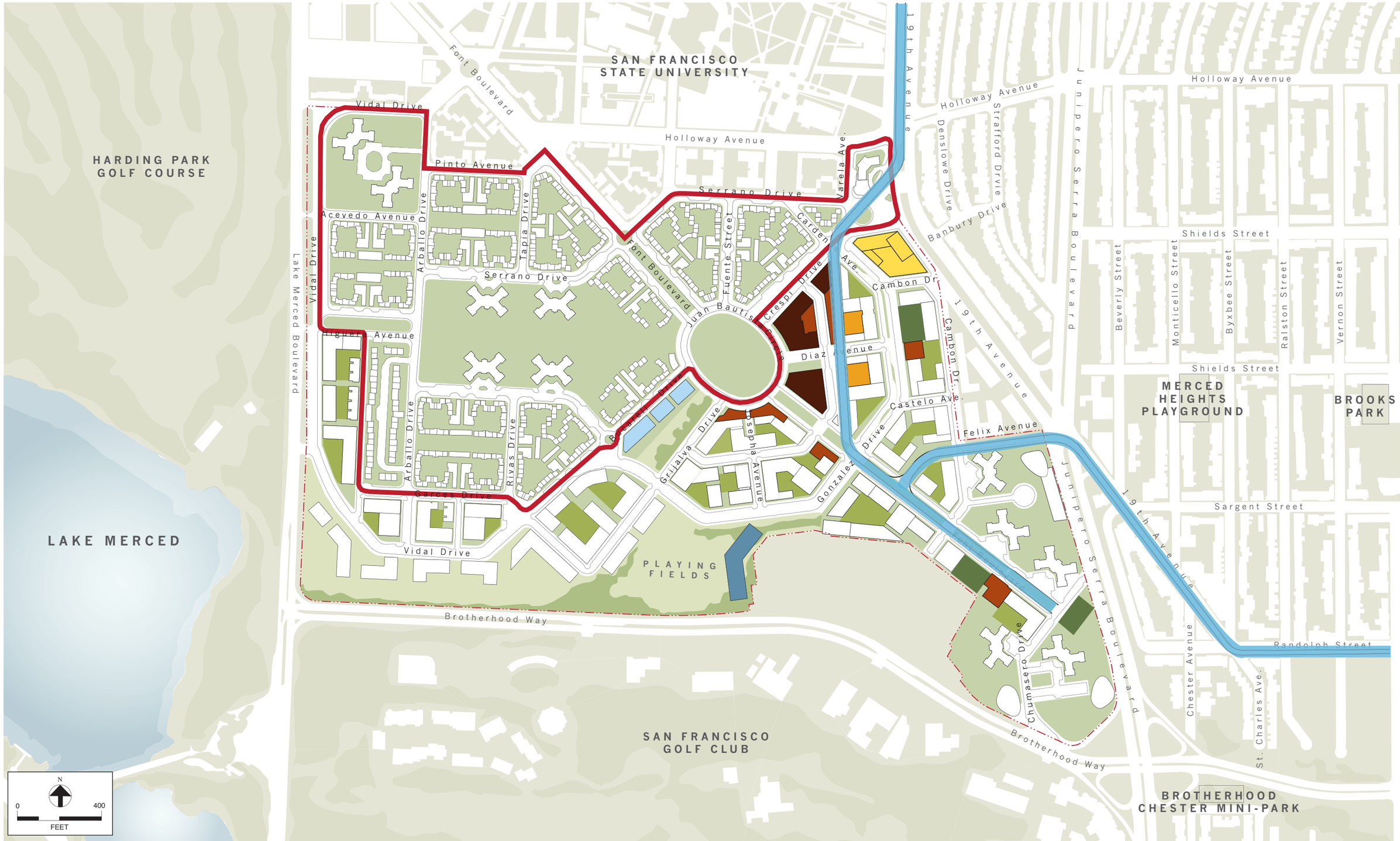
Unlike the Proposed Project, there would be no renewable energy sources, such as wind turbines and photovoltaic cells, to offset any portion of energy demand. As under existing conditions, stormwater runoff from buildings and streets would flow into the combined sewer and stormwater lines that lead to the Oceanside Water Pollution Control Plant.

This potential EIR alternative was considered but not selected for analysis in this EIR because it would not achieve the Project Sponsor's objectives, particularly those related to maximizing the opportunity to create high-density housing near a commercial center, sustainability, and financial feasibility. In addition, this potential EIR alternative would not avoid a significant adverse impact on the significance of the Parkmerced's historic district resource. Although a portion of the existing Parkmerced historic district resource would be retained as a representative sample of the historic and architectural significance of the original Parkmerced historic district resource, the retained portion would not be sufficient to convey its historic and architectural significance to justify its eligibility for inclusion in the CRHR.[13] The Historic District Core Alternative was chosen for analysis since it would retain eligibility as an historic district.

H. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative that has the fewest significant environmental impacts from among the alternatives evaluated. Besides the No Project Alternative, Alternative C, Retention of the Historic District Central Core Alternative, would be the environmentally superior alternative due to its reduced historic and cultural resource impacts.

[13] Page & Turnbull, Inc., *Historic Resources Alternatives Study*, November 13, 2009, pp. 24-28. This document is available for public review at the Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2008.0021E.



SOURCE: SOM, Turnstone Consulting

PROJECT BOUNDARY
PROPOSED GROUND-FLOOR RETAIL
PROPOSED GROUND-FLOOR RETAIL/OFFICE ABOVE
PROPOSED OFF-STREET SURFACE PARKING
PROPOSED LEASING OFFICE
PROPOSED M OCEANVIEW LIGHT RAIL LINE CONFIGURATION
EXISTING & PROPOSED RESIDENTIAL
PROPOSED FITNESS CENTER
PROPOSED PRE-K-5 SCHOOL • DAY CARE FACILITY

FIGURE VII.8: WEST-SIDE PARTIAL HISTORIC DISTRICT ALTERNATIVE

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